Higher Education

Lecturers join students as protest over higher tuition fees goes on

Leeds, Exeter and Glasgow.
Occupations were still toking place throughout the country at more than 30 collagas, and students at the London School of Ecounnics

occupy the school's premises.

The students were joined by lecturars, and omong the utarchers in London was expected to be Sir Brian Fluwers, rector of imperial College, London, Dr Frank Thistle-waite, vice chancellor of East Anglio University, encouraged staff to restrange teaching to enable students to attend the resilv.

and presented a letter to Mrs Wil-liems, Secretary of Stota for Educa-tion and Science, in answer to her Invitation to meat and discuss fees.

Mrs Williams said demonstrations

The savings to be mode from higher fees had to be found from higher and further enacution, and there could be no question of saak-

of the education budger.

As a developed country, Britain had an obligation to pearer countries. But I see no reason why this obligation chauld extend towords countries batter aff then ourselves, or why British taxpayors should heavily subsidize students from these countries.

was that an expension of highor education would leed to en expension of opportunities comparable to those open to university groduates 15 years ago.

In so for as the sxpansion of higher education was motivated by pseudo-economic objectives, it was bound to leed to limits to growth at an early date, and to tremandous individual frustrations in the bargoin. Yes, education is e civil right, but that is so because it is in itself worthwhile, like trevel, or come kinds of work, rather than because it promises a certain income or stetus.

Perlians the present crisis of aducation will teach us a useful lesson about the limits of the much-exaggerated link between the aduca-

ontinued from page 1

by Frances Gibb

The National Union of Studento' campaign sgainet increusad tuition fees reached e climax this week with a more by some 10,000 students in London and rollies at Leeds, Exeter and Glasgow.

Occupations were still toking place throughout the country at more than 30 collagas, and students at the London School of Ecounnics

give assistance to students from home coversage siresdy an course, she said. Student bedies were also not without reasources, and she she said. Student bedies were also not without reasources, and she she students have been in accupation for mestry two weeks, the policy would be impressed by their will-inguished to the college that be wus against the control of the callage that be wus against the control of the callage that be wus against the possibility of a meeting and said it which discuss in particular the callege had to implement the naw fees.

A faint statement from the the grants review, with reference to discretionary grants and parental means testing, and fees, it would be sceking a commitment that no student should be forced to leave a course through fibrancial hardship. It also wanted a debats with all educational bodies on possible olternutive methods of funding education. The week of action claimed some successes. The NUS exid that Iraianni Polytochnic had agreed in principles that they were ogsinst in-

pcincipls that they were ogsinst in-creasing facs for self-financed stuset up a joint working party of gov-ernors and snidents to ensure that ernors and students to custure that no students was forced to leave a course through financial hardelin.

The NUS has sant lotters to all 54 uther national student unions asking far their support. It is concerned that other countries will retailate and set off o chain reaction which could lead to the end of educational exchanges between British and nyeroess students.

The Warld University Service urged all student unions this week to inhiby Dr David Owen, Sacratory of Stote for Foraign and Communwealth Affairs, and Mrs Williams, to make special provision in the furm of scholarship for refugee students and students from dovaloping comuries. nvereeas etudents, Laet week Bradford University cent letters to all university senstas

As a developed country, Britain had an obligation to posser countries. But I see no reason why this obligation chauld extend to words countries batter off then our selves, or why British taxpayors should heavily subsidize students from those countries. But I see no reason why while expressing concern, how suid the matter has yet to be discussed by their senates. Same universities wish to dost directly through the Committee of Vice Chencellore and Principale.

'Unrealistic' career hopes attacked

by Dovid Welker

Many students now on ocadamic degree caursee would be of much graeter uea to society if thay had left school and gone streight to work, Mr Oskes, Ministar of State for Higher Education, taid e confersace of schucationists and industrialists this week.

Such students would be happler either an polytecluric sondwich courses or working for firms that knew the value of appropriate training. Some 16-year-olds, too, would have had a hetter chance in life if they had avoided the sixth form and found apprenticeships.

Mr Oakas taid a masting of the British Association for Cammarcial and Industriol Education in London: "Wc oro rightly proud in this camery of the tremondous expension of educational opportunity we have achioved: all poet-16 since tian has increased substantiolly, and the numbers entering further education colleges has actually doubled in the paet ten years. One of the features of the so-colled good old days was that far too many ynungsters never got a laok, in when it came to developing their full potentiol.

"It scous to me that we now in the course of the solution of allows—purely in the curious university lelevite."

"It scous to me that we now in the controlled and the curious university lelevite."

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"It scous to me that we now in the curious university lelevite."

"It scous to me that we now in the curious university l dabate an Issues of "fundamental Importanca".

Among student unions in occupation this weak were: Craydon Tachnical Collega, Crawley Technical Collega, The Slade School of Art, Central School of Art and Dasign, York University, Ifendon College of Further Education, Hull University, Leeds University Brunel University, City University, North East Landon Polytechnic, Polytechnic of North Landon, and the New University of Ulster.

cetion colleges hos actually doubled in the paet ten yeors. Ona of the feoturas of the so-colled good old days was that far too many ynungsters never got a laok, in when it came to developing their full potential.

"It seems to me that we now hove to toke the greatest possible cars not to produce the precleely opposite problem: that is, by making continuad full-time adneution seem the norm, we may be ancour-

opposite problem: that is, by making continuad full-time adneution seem the norm, we may be ancouraging unrealistic career aspirations amang some young people, and sise be actually depriving them of the practical preparation meany of them will accident the klod of employment areas their applitudes suggest."

Mr Gokes spoke of a moze confronting the school leaver, of paties which lad him to the wrong place. What was needed was "cumprehensive caumeelling" for 16-year-olds an work and further and higher sducation choices. The heat passible ceroses guidance ought to be ovaliable from an sariier age, perhops from 13 years.

The thems of the conference was the state of ploy in the various job experiences and vocational proporation echemes started in recent years. Mr Oekes emphasized the need for collaboration between education and industry and listed recent hitiatives by the Deportment of Education; the further advection curriculum review unit, the training and further education consultative group, and se on the polut at enccess after e year's compolin at those issues. fu recent epeschas both ministers had indicated that they were sympothetic to the plight of such studente.

curriculum reviow unit, the training and further education consultative group, and so on.

In the light of such echievements, Mr Ookes criticized the "professional poesimiste" in the press and madia who had attacked the pilot vocetional praparation echeme being run by the Training Servicas Agency end local aducation authorities. The first response of employees to the In Septembar 1978 the base reached 75, 18 more than the CNA maximum. At the beginning of the current acodemic year, 92 first students were annolled insist at the 75 laid down by the count The polytechnic plans to have lovel talke with the CNAA should controvariol ruling. The law should week due to meet on Wedner end local aducation authorities. The first response of employers to the echanic demonstrated in their willechama demonstrated in their willlingness to ralasse young people from
work had been disoppointing ha
said, and the echame could have
been botter arranged.

"One of the mein reasons for
our poor record in day-release is
that many employers are not convinced of the value of off-the-inb
training and further education for
young workers. This cells for investigetion.

dents."

But o polytechulc spokenist sald i "Wo are going to challens the ruling. The council has press the ruling. The council has press led us with a fait occompil but the were good reasons for the prometric." He maintained is demand for the course was high in

Dr Neave's university challenge

tory and economics graduates a kept high, it is because that it is path of educational righteenast that leads to high prastiae set reserved occupations at the inside set of which is the Civil Service. Putterns of Inequality by Ser Neave: NFER Publishing, Thank Avenue, Windsor, £4.60.

Law course

one year from text September.
The rulbing follows the college decision to exceed the maximal intake figures feld dawn by the CNAA in both the years the common text of the search of the

In a letter to the directors thie week Mr John Bevan, senior ossistant education officer, eald: "The systet targets for the 1977-78 session will ust be insisted unon although the authority will definitely oxpact to see some decrease, compared with those in the current session."

authority had not formally recon-eldered its policy about foreign otu-dants but the whole position would be reviewed by the ILEA higher-and further education sub-commit-tee

ILEA softens

The Inner London Education Authority has substantially shifted its stond over the concreversial introduction of evereses student quotes in its five polytechnics.

A In a surprise mave the anthority has withdrawn threats to reduce the block grants and staff establishments of the polytechnics opposing the quote railing. It has also indicated that the indial laval of entbacks in overseas student numbers, to begin in September, will not now be insisted upon.

numbers, to begin in September, will not now be insisted upon.

This foliowe top-level moetings between the polytechnic directors and the authority, and fruitful discussions between Mr Tom Driver, general sercetory of the National Association of Teachers in Further and Higher Education eod Sir Ashiey Braniali, leader of the like.

overseas

by Suc Reid

student line

Laor outumn the sutherity in structed the polytechnics to keep their overseas etudent numbers to the come level as the 1975-76 academic year. The standarill was dasigned as the first phase of an ILEA plan to reduce tham from 25 per cent to 10 per cent by 1982. The governing bodies of Thames and Central London polytechnics earlier links year rejected the reduction directive. South Bank and City polytechnics called for further tolks end tha North London polytechnics to discuss tha Issue latar this find a to discuss tha Issue latar this for temperature of the past 10 days getting payched up to discuss tha Issue latar this for temperature. It would be wrong to assum

s dua to discuss tha Issuo latar this

student riots

THE TIMES

over unemployment

Italy rocked by

Armoured cars and heliconters were parrolling the university aren of Bolagna and oll public demanstra-tions were forbidden in Rome this week after the frustration fests ring in Itolian universities exploded into vinient urbut guerrilla warfarc.

The avents brought home to o shoken government and camility the fact that mossive youth unomployment out the near-collopee of the universities under the weight of student numbers has turned the campuses into breeding grounds of violence, extromism and subversion. There are indications that bidden political farces are manipulating the wilder alements in an affort the wilder alemente in an affort to undermine democracy.

Tension and resentment have been building up in the universities for several weeks. Many are occu-pied and Rome University and to be to see some decrease, compared with those in the current session."

The authority was poetponing a decision about any reduction in teaching staff ostablishments to ellow further discussions to take place. There would be a review of the oversees student policy before any targets were set for the 1978-79 session.

It was in this atmosphere of bittarneas and anger against the authorities that some 50,000 students from ell over the country converged on Rame last Saturday for what was intended to be a

potte, sminst shop windarys and overturn and eet firs to buses and
triving cars. The police, who were
trying to keep the merch under control without clushes which could
couse victims, were repeatedly firsd
of and pelted with heavy grante
cobblestonss.

Some 20 psopla were injured, 14
of them pullcemen, many with
built wounds. About 100 students
were detained out 30 errested, some
for ottempted murder.

from the effects of renistribution.
The DIISS letter says that the
secretory of Stote, Mr Ennols,
racegnizas that in some circumstances it may be inspropriste to
redistribute funds towards RAWP
torgets, and, exceptionally, it may
be "appropriate actually to Increose the difference between
current ollocation and torget".
The need to protect renires of
medical excellence and teaching
farillities is spelt out at some length.

wera detained and 30 arrested, some for ottempted murder.

The Interior Minister, Signor Frencesco Cossige, issued e statement half way through the evening colling the disorders a "programment half way through the plan for urhan guerrilla warfare".

Thore can be no doubt that the groups had cume prepared for violence: they had brought mocks, pistole and knapsacks full of petrol bombs with special chemical detained.

But grains of youths with firearms, iron hars unit petrol bombi
broke away from the princession to
attack the headquarters of rita ruling Christian Demacrat Parly, ransock two gim shops for mars woopotte, smast shop windays and overturn and eet fire to buses and
private cars. The police, who were
trying to keep the merch under control without clushes which could so

their rejection of any political label, but widely differing in style. Some, like the so-called "Metropolitan Indians" are picturesque and wear warpaint and erc givon

Top medical schools twist DHSS's arm

y Clive Cnokson ience corresponden)

New guidelines from the Denarr-ment of Health and Sacial Services for the distribution of funds within the distribution in funds within the distribution in the interests of medical concotion, it was claimed this week.

Last year's proposals from the Covernment's Resources Allocation Working Party (RAWPt for redistri-buting loadth service money to deprived areas provinced an outcry from medical schools, especially in Lomian, which claimed that the long term interests of education were being socrificed in a dobinus

Polytechnic, 16

were helng sacrificed in a dobinus quest for equality.

At a conforence of the Association for the Study of Medical Education for the Study of Medical Education for the Study Dr Robert Lawe, dean of St George's Haspital Medical Schnol, said the DHSS had responded in the prinests by sending the regional health amborities a letter which "strikingly modified" the original proposals.

In particular, reglunal university lluison committees are to discuss as part of the process of allocation the total level of resources to he mode synthable to teoching hospitals and malts. The RAWP report had recommended merely that university ligison committees should be consulted before allocating the Service Increment for Teaching (SIRT)

farilities is spelt out at some length, Authorities are reminded that teach

sourcas. And the Secretary of State accepts that funds should be availaccepts that funds should be available to sustoin a high stoudard in centres where students are taught."

A DHSS spokesman sold the letter contained nothing really new. It was just a raminder to regions of the procedures they should be carrying out anyway. But North West Thomes Regional Health continued on book page.

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Contents

Industry expects...

Industry and higher education: getting it right,

leader 16 Sheffield Polytechnic's Centre for Innovation and

Productivity, 8 Are British and American

PhDs equivalent? 12 Letters from Imperial College and Hatfield

Isaac Newton

Frances Yates discusses the alchemist behind the great mathematician, 13

Educator extraordinary

A bibliographic guide to the writings of the philosopher and psychologist, John Dewey.

Public voices

Frances Gibb and Sue Reid examine the Vice-Chancellors' Committee and the Committee of Polytechnic Directors in Briefing", 9

Paul Ehrlich

Michael Binyon talks to Stanford ecologist and prophet of doom Paul Ehrlich, 7

University presses

Six pages of reviews of new books from university presses, 18-23

Don's diery	
Noticeboard	
Educational technology	10.1
Narth American news	1
Ovorsens news	1
Letters	. 1
Ronks	[8-2]

Altogather, students today reflect tha plight of many groupe in our society, clinging to what they have gut rather than groping for something new—and ona must hope that this is not a mood which will determine that politics of the 1980s.

between distant organisms which

Dr Wald, one of the panellists at the Academy meeting, said this re-search was perhaps the biggest issue in the history of science and the experiments might constitute the biggest liresk with nature that has occurred in human aletory.

He esked whether any scientist should have "three billion years of

between distant organisms which have not been demonstrated to exchenge genes in nature."

The group, supported by the Friends of the Earth, claims over 400 sponsors from the United States, Britain and eight other rountries where DNA research is about to begin.

Dr Wald, one of the panellists at the Academy meeting, said this research was perhaps the biggest issue in the history of science and the NAS forum was one of the Table 100 and 100 and

The NAS forum was one of the largest and most controversial held for meany years. The sessions were packed, and included representatives from 15 couparies, schelars, pirinsophers and members of public

Fear the spur behind unrest the status and ("an cuts", "no fee increases") ere often desperate, especially if they run counter to the pravailing trends of public opinion. Since they are not likely to be setisfied to any eignificant extent, it is difficult to see how the causes of the restlessness which they provoke can be removed. Moreover, declining groupe are in call for a sharing agreement, or are in call for a sharing agreement, are in call for a sharing agreement, are in call for a sharing agreement, are in call for a sharing agreement.

the pravaling trends of public opinion. Since they are not likely to be setisfied to any eignificant extent, it is difficult to see how the causes of the restlessness which thay provoke can be remaved.

Moreover, declining groups are less able to rasist intimidation by organized groups which claim to represent them. Those who are afraid of their futura today, era quite likely to find in 10 years time that they were right, wheraes those who demended e ploca in the sun 10 years ogo may well have found it by their own affort. If onn's feare turn out to be justified, one is likely to be vukerable, or at any rate less immunate the bug of intimidation.

Altogather, students todoy reflect

nominated by the Advisory Concilla-tion and Arbitration Service. It would deport from the Burnham pattern of sinual salary nagotie-tions and could negotiate on condi-

tione, and pay separately at any rime. NATFHE also ptoposas e usrellel

Oxford to go 'mixed'

the of the straight held whose were spresentation and the series of public and the series of the series

FE teachers

Until thet has bappened, however, the new restlessnass of educational protectionism is likely to be with that this is not a mood which will us, and it will be unipleosant. For there are a there features which distinguish 1977 from 1968:

The author is director of the LSE and a THES columnist.

The author is director of the LSE and a THES columnist.

The hew body, comprised of reached the Government.

The new body, comprised of reached the government of the College Closure that many employers are noticed and many employers are noticed and many employers are noticed and many employers are noticed.

The DES from notional selary negotiations.

The schame for a naw notional foliations.

The best of the College of the distinguish of the council meating at the well and the council meating at the purple of the council meating at the well and the council meating at the purple of the council meating at the purple of the council meating at the well and the council meating at the purple of the council meating at the

regionel negotieting mechinery, mainly to resolve local disputes.

of the Burnham machinery and its raplacement with a non-statutory body dealing with both pay and conditione.

The effact would be to reduce the fresdom of local authorities to act independently, while freeling that teachars from what they regard as the untiquated legal restraints of axisting pay machinery.

NATFHE also wants to remova the DES from notional selary negotiations.

Oxford University Congregation hee voted 88 to 85 for a policy of no longer withholding consent to

The Open University Senata has voted in favour of a motion calling on Sir Weltar Parry, tha vice-chancallor, to meet the Ministors of Strate for Education and the Environment to express the university's diamay over the Gowernmont's proposal to close Mitton Keynes Collega of Education.

Id a postal ballot, the vote was 229 in favoir and 21 ngainst. The motion includes the words: 'It is the considered view of Sanato the the closure of Mixton Keynes College would be unjustifiable and that the proposal to do so could not have taken account of the speciel role of this college in a developing to community or the speciel significance of its relationship with the Open University". The college bos been running a combined degree with the university since 1972.

OU 'dismay' over

Food, glorious food is

What travels sitting down, concumes 10,000 calaries a What travels sitting down, concumes 10,000 calaries a day ond is abnormably attractive to woman? Most manbers of the Oxford boat race craw.

Like their Combridge commarports, they have been in London for the past 10 days getting "psychod up" for tomorrow's race. It would be wrong to assume, however, that this involved a lot of rowing—same days

Lord Boyle to be

CVCP chairman

Lord Boyle of Handsworth, vicechancellor of Leeds University since
that Committee of Vica-Chancellors, and Principals for 1977-78. He such the chancellor of Oxford University, in July.

Briefing ", page 9

however, that thie involved a lot of rowing—same days as little os 17 minutes—but it does mean earne days as little os 17 minutes—but it does mean earne of lot of corden bleu meels, watching films in their altring room only answaring phone colls from lody odnilrers.

"Wa have to keep eathing", explained and corsumant from ballind an unusuolly large slice of the chocolata coke which camouflaged the entire craw, "because we burn up o lot of energy. Whining a boat race hos or lot the do with fond."

This heing the cosa, Oxford's secret weening is not their new boat, but Miss Cellu Keyworth, their coak, who has accustomed the creem of our notion's woter-borno heefcaka to go to work on taramosaloto, Persian chicken ond home-mode thocalgo profiteroics.

The only exception is that cox, Colin Moynilhor, who,

- cra would not A

lika tha tragle sub filot in a comedy, has apant the past fortulght eating as little as possible. He used to be an eight stone weakling, but hos lost mina pounds and sits at dinner sucking his natural yoghurt. "I am all right so long as I don't use any energy", ha asid without moving n muscle.

The crew do a fair annunt of entertaining nod gen-

The crew do a fair amount of energining nod generally have guests in for dinner: one night the press came and there was "girlfriends' night too, which is not us exciting as it saturds, but does meen that their arisen. Doph ness get their hands un sume, food. Hut the day of the roce will be different and you have to edular the clover psychology of it. They will heckfist of 7.30, row briefly and then have at light meal or 9.30. They will not then ha feel agoin until after the race at 1 pm, a causing inconfee which will ensure they raw as quickly as possible. However, should heavy cross winds impede their progress, the danger is that many of than will get out and ruh.



Clossified index

population.
The first class attracted eight students as diverse as division and collector, peacher, policeman and contribute driver. Their hosic policeman and contribute driver. interest was practical. Work brought them in daily contact with Asians, underlining the need to communicate: the dustbln man wanted to have a few words of Urth to help

him on his rounds.

Mr Daylil Blezade, head of the department of liberol education at the college, sees it as a philosophical response to a specific community need, aport from the educational aspects, encouraging the intigenous inhabitants to approach abou com-

The class liss grown in 18, the present limit under existing conditions. An Asian studies course is in the plauning stage.
Reactions from Asians has been

Merger suggested for British Council

The report of the working group on British universities, polytechnics and overseus development, miler the chairmanship of Sir Michnel

night be nore politically feasible.
It is ovailable from the Inter-University Consult for Higher Edu-cation Overseus, 90/91 Tottenhom Court Rond, London W1P ODT,

Overseas continued:

PSYCHOLOGY

NURSING

SENIOR LECTURER

tions preferred.

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LECTURER/SENIOR TUTOA/TUTOR

Oxford men may take mixed college case straight to Privy Council

If they dol, they would be trying to by-pass the system under which the university has to approve changes to college suttites which affect the university as a whole before the Privy Council is asked for its consent.

The impatience of the oren's colleges to get the question settled stems from the indecisive end to a debate in Congregation last week, when the done wired 88 to 85 in farour of a resolution that the university should no longer with-hold consent in changes in college statutes which would allow them to

As soon as the closeness of the vote become apparent, dons oppos-ing the resolution collected the 50 signitures necessary in requisition a postol vote which they hope can be arranged quickly and the result anantinced before the stort of next ternt on April 24.

For procedural reasons, on ulter-Swam, has now been published.

The report recommends a strengthened inter-University Council as the best meons of organizing overseas connects in future but recognizes that a overger agreed to Congregorium, there is no need for luste to the publish Council and the little cou future but recognizes that a merger | apectu to congregorium, there is no uf the IUC and the liritish Council | aced for huste to go mixed; justend another be omre nolitically feasible. | there should be an orderly process

This resolution that while the subject of another pastal vale.

The delate in Congregation was a desired by the way it would be

If Oxford University these not soon make up its usual about co-residence, the single-sex men's calleges. They that react approach to the Privy in "produce a scheme which will hapter if they could immerse Council for approval to amend their aver the next five years allow some themselves in what they were doing

Applications for several Let University Culleges are up thing by hetween 10 and 20 per man above the national average of the cent, according to the later to single-sex colleges to admin undergenduates of either sex.", while ensuring that the interests of the
women's colleges are not jengardised; that colleges which remain
single-sex are not put at a disadyontage in any new system of admissions groups; and that all regamable steps are taken to prevent the
molorization of subjects.

The principal added: "I expect
that this is all very deplocable,
but I believe it in by true of a
large coming monthler of young
women to make the existence of
some women's colleges desirable,
able steps are taken to prevent the
molorization of subjects. Undergradume application : Imperial College show a 16 pm a impresse over this time lange year hefore, while those to the Mary College, a total of \$22, up by II per cent.

The delate in Congregation was a remarkable for a speech by the principal of Somerville College, Mrs. It would be regarded as the starting parameter ally, she said she would prefer Somerville of stay single-sex for the time being.

It would be said, she said, if public apinion were to bring about changes that the Sex Distributional of the colleges would not feel able to hold back for reverse. Many young women, advantage.

If the resolution is then defended there would be in end to the huges of the men's culleges wanting to go nixed that they would be uble to omtriculate women in October, 1979. For procedural received.

the new degree was defeoted by 81 menting it ", wites to 13 in Congregation last Hypasition.

SENIOR LECTURER

TOWN PLANHING

ANATOMY
SENIOR TUTOR/TUTOR

SENIOR TUTOR/TUTOR

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perience, including teaching preferred. SENIOR TUTOR/TUTOR—A relavant degree with some

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TENURE: Appointment may be either tenured or non-tenured for a period of up to three years.

APPLICATIONS: Datelled epplicatione, including a curriculum vitae and the names of three refer-

APPLICATIONS: Datelled applications, including a confidence vitae and the names of three referees should be submitted to the Appointments Officer, Western Australian Institute of Tachnology, Heyman Road, South Bantley 8102, Waatern Australia. A prochure containing furthar information

may be obtained from the above eddresa. Closing date April 16, 1977.

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ate and graduata courses in Town and Regional Planning. Applicanta should be queltfied tor

full membarehip of the RAPI or RTPI end have broad practical and teaching experience in the

or stattetics and a profassional qualification in

public financa or macroaconomice.

SCHOOL OF THE ARTS AND DESIGN

application of current planning thaory.

EDUCATIONAL' DEVELOPMENT UNIT

courae design and evaluation

aducation prelarred.

asith course and associated and R & D. A working knowledge of computing

Ruskin School of Drawing and Pine
Art, at Oxford, will start a Bachelor
of Fine Arts degree from next
nember. Opposition to establishing statement of the casts of imple-

week.
Tatul intake will be 20 each year and students will be admitted as undergraduates of colleges. At present students of the admitted as present students of one have undergraduates of colleges. At present students of one have undergraduates of the degree colleges. At present students of the matter annual cost of the degree colleges. At present students of the matter annual cost of the degree colleges.

there should be an orderly process of change.

The ulternative resolution, like the one voted on in Congregation, recognizes that the continuance of some single-sex colleges and on a proposal preventing it being established to the faculties, speaking for the formative process that the continuance of some single-sex colleges and on a proposal preventing it being established to the faculties, speaking for the faculties, speaking for the faculties, speaking for the faculties, speaking for the faculties were not usually taken into a proposal preventing it being established.

per your, and hasic medical size where they are up by 28 pers. Another popular subject is got for which applications have w by 5d per cent. University College has his

67 per cent increase in applica-for fine arts, partly bea-admissions for the course here recently been through the Unit and a 17 per cent hereset pharmacology. Other subject which demand is hungest Fregish, where applications are by 20 per cent, medicine (b) coult, civil engineeding (14 pers and computer science (14 pers subjects stown on last year and chemistry and physics.

Temand at Wyo College is as for applicularity economics and by selects.

Sharp riseil,

applications

for London

At Chelsea College applier for undergraduate science us,

are up by 20 per cent and & Cullege is showing an overall;

in applications of 14 per centy more than 12 students on me, applying for each place.

The latest figures at Uning.
College show applications have?
by just over 7 per cent to 10
and at King's by 13 per end

Each college is showing and

increases in particular subjection of the control o

Science and engineering any up, with a 11 per cent lead overall, and particular increase.

intelear engineering (35 per a

and in computer science (B)

At Chelsea, substantial fees are evident in histogical siles

where applications are ap h

selected. Applications for any selections are up by one-third, self-huttrulture and agricultural to units by one-fifth.

At Kloge's Cutlege application on the continue to rise for the particular to the continue to rise for the particular to the continue to rise for the particular to the continue to th

engineering, and there been been small increases in application chemistry, mechanical and in applications of the complete states of the c engineering, deranuules, comps science, life sciences, perok

UCCA expects 11,000 more

The Universities Central Councils
Admissions expects 11,000 an
applicants for university place in
year than last. This is an ionar
of one twelfth, but final magn
sour will have to wait till but
the year.

tha year.
Estimotes based on UCCAIN
ruary figures give an emission
153,000 candidotes, compared to
142,000 in October, 1976. Its
figures would have been high
the flow of overseas candidates. kept up last year's raie.

kept up last year's rate.

As it is the torat number of me seas applicants enaid sail be gent than last year, but they will not than last year, but they will not ably rapresent 13 per cent able total compared with 13.5 per me total compared in an applicable of medicine, mechanical saided in g. agriculture, business stolating, agriculture, business stolating accountancy and education, was figures for the last subject and figures for the last subject are plicated by inclusion of compared transferred from further education.

Smaller increases here the

transferred from further smaller increases have spiects place in other applied subjects plats in the traditional civil established in the traditional civil established and general engineering by trical and general engineering by trical and general engineering by cliemtstry, combined languages of bined social studies and arts, other spieces with social studies and arts.

THE TIMES DIGHER EDUCATION SUPPLEMENT 18.3.77

Medical intake to increase as planned by t'live l'ookson, science correspondent

The increased intake to medical schools is to gn alread towards o target of 4.100 under-gradianes a year by the early 1980s, despite graving fears in the profession that the country will soon be producing ton many doctors.

Sir Frederlek Dainton, chairman of the University Grants Committee, and Professor John Reid, depoty chief medical afficer at the Department of Health and Social Security, made it clear to a meeting of the Association for the Storly of Medical Education (ASME) an Manday

conting its expansion plans, into carring its expansion plans,
Last week the British Madical Association's Special Representative Meeting vated to inclinic in its evidence to the Royal Commission on the Health Service a report by the Rospinal junior Staff Committee calling for the nonnal output of medical graduates to be cot to 2,820 by an immediate reduction in modical school admissions (this would mean an intake of about 3,070, allowing for undergraduate mastage).

The junior doctors' document claims that medical anemployment is inevitable even if intake is held stendy or next year's level (3,735).

medical iniciployment is inevitable even if in-tuke is held steody or next year's level (3,735). Curing lock would, they say, "allow the HK to become self-sufficient in doctors, will allow for a small growth in potentially employable doctors and assumes we have about as more doctors as we need now. This would also pro-

there a saving in training costs and salaries over the next five years of about \$132m". Manquower planning was a major preoccupa-tion at the IIMA meeting, and some delegates coiced their feur of doctors on the date in

emotional terms.

The DHSS was said to be deliberately aiming for an oversupply such as it would get doctors' services more cheaptly, and the UGC was accused of nowillingness to take a long term view because a reduction in medical school numbers

would mean a fall in UCC income. Illuvever some speakers cast doubt on the volidity of the statistics the juniors used to produce their figure of 2,820 graduates a year—revised upwards from 2,600 just before the

Figures Sir Frederick gave the ASME conference at the Royal College of Physicians showed that detailed planning extends to a medical school intake of 3,921 in 1979. The 4,100 target would be reached "by the early 1980;

Professor Reid subt the Government still stached "high prinrity" to achieving this target and did not feel it should be reduced "in the light of present knowledge". But he ogreed that a mechanism for keeping medical amingnager ander continual review was needed -the BMA is demanding an independent munpower review body to make namual recommenda-tions on intake,

Sir frederick saft the COC, in liaising with the DHSS, was keeping a close warrh on the availability of pre-registration posts for newly graduated medical students—these give the year's hospital experience needed before regis tration with the General Medical Council, and there have been fears that soon there will not he enough house july to go cound.

Professor Held said the position was quite secure for the next three years. A working party was hooking at the long-term future, but there was no prestion of medical graduates being unable to qualify because they could not get a pre-registration job.

Sir John Brotherston of the Scottish Home and Health Department told the meeting that 1977 would be a critical year in Scotland, because two years were graduating angelier from Glasgow University Faculty of Medicine following a reduction in the length of the course. But there was evidence that the health service could absorb more pre-registration posts than had been forcost.

Signalum did now believe Peters

sion posts than had been forcost.

Sir John did not believe Britain was producing too many doctors—though it would soon oppent to be unless the health service coreer structure twas reformed. This reflected o major concern of the ASME conference. Medical educationists are just us worried about the deficiences of the health service cureer structure as full-time hospital doctors.

Universities 'mislead on sandwich courses

Many universities muslead students has applying for sambwich courses by making them one to be integrated, when it is generally acknow-ledged that there is little connexion between the work and study parts.

This is claimed in a paper to be presented next month as a oreering of the National Institute for Coreers the National Institute for Coreers
Education and Counselling, by Prafessor A. G. Smithers, of Manchester University's education department. He says the industrial and
educational worlds agree that sandwhich courses provide, at best, complementary parallel experiences.

"This is in spile of the fact that the main justification for them has slwaya been the they are integroted courses and the claim is yearly repeated in the pruspectuses. of the technological universities and polytechnics."

Admitting the Iruth would not only "avoid some of the disappoint-ment associated with the first periods of industriol training", but also give extra flexibility in course planning. The length and content of the training element could the be looked at to some extent inde-pendently of the acadamic port.

Professor Smithers does not think sandwich courses have quite lived up to expectations stil he does not believe more integration could be uchieved in practice " given the difand oniver: hies/polytechnics ".

Alternation of work and study is not in itself a good thing, he says, "Even the Russlans and Chineso appear to have abandoned this as ideology. Any evaluation must take into account what work experience, what study experience. Simply to send a student oway from college

want study experience. Supply to send a student oway from college for half the year does not add up to an educational principle.

"Where the higher education course is directly related to same area of practical experies as in medicine, teaching and engineering, then clearly it is desirable that students should have some aystematic introduction to the application of that expertise. But the different experiences do not have to be equal in length or whermaled."

Existing sondwich courses should not accountly be curtailed, at loost in applied fields, "But I can see no oducational grounds for overturning established courses of overturning chalfield, at loost in applied fields, "But I can see no oducational grounds for overturning established courses of indeed to be carried to be saidwich system are really more concarned with extrinsic matters like the control of the curriculout them the intrinsic problems of educating creative engineers."

Government may have secret plan to cut numbers, v-c says

The Government may have a secret policy to reduce numbers entering ligher education, Dr G. M. Burnen, principal and vice-chuncellor of Heriot-Watt University, says in his

ennual report for 1975/76. The reasoning behind the fee increases was, "to say the least, obscure", he writes, "Is there, for example, an unstated policy to reduce the number of young people entering higher education? Is there a gove to reduce the postgraduate complement both on advanced corress and research? Is there a desire to reduce the unit costs in universities still further than has been happening for some time?"

The new levels would cause hard-ship and there could be a marked decrease in postgroduote activity,

Heriot-Watt would suffer because it always had a relotively high fee income. For example, in 1977/78 it could have 33 per cent of its income from fees. He therefore questions whether the university's re-

"What is certain is that while we have something over I per cent of United Kingdom students, we receive less than I per cent of the national cake, and we are also heavily technological."

Commenting on university 5rd-The Government had inken little little little little inted of the "excellent and thoughtful" report on fees by the vice-chancellars. The large undergrating are such postgraduates fee intreuses, and the retention of the home/oversand the retention of the home of the

Support for overseas quota

A quota system for buth hours and oversens postgraduates would be much more acceptable than high and leposible to mointain librarias and librarias and leposible to mointain librarias and librari fees which deter them. De Clifford Butler, vice-choucs for of Longhborough University, writes in his snugl report for 1975-76.

If Loughbornugh implemented the new fee levels, it would lose half its 405 self-fluenced postgroduates and a small proportion of the rest, he says. Self-financed postgraduates form 37 per cent of the lotal 1,097.

He wurns also that although the tuniversity managed to sava some tim over the year it night soon

and laboratories adequately.

The university would also find it difficult to maintoin the tevel of its research activity during the next few years. The total value of its Science Research Council grants at the end of March tast year was £889,000 compared with £1.05m the year before.

Students in Laneaster University's department of English longuoge and nucdeval literature staging an evening of medievol drama last week. They traced the development of Easter liturgleet drume from the tentitientry to the intermiddle oges, and culminated in this performance on a medieval pageout wagon of one of the York mystery pleys—the corpenters' play of the resurrection. On the future development of the university, he says it had revised its student target of 6,000 students by 1981 to 5,200, and even that might be unrealistic in view of

ılı University,

pressure group. They might not make the best translators, lacking, perhaps, flair or inclination, but they were potentially the bast watchdogs and could more than ony other group say with authority that a translation was good.

There had been some excallent criticisms of translotions by indi-viduals, onne non-academic, he said. But if they did not get to-Ecther and put up a united public front, their criticisms would go un-

He also blamed the poor pay given by publishers to translatora for the present low standards. At present naterial incentive to translate iterature well is pravided olmost eatirely by publishers. If the pre-sent payments represented a maxi-

In a public lecture this week he uranslator who has no real choica translator who has no real choica or pressure group. They might not make the best translators lecking. Butler says.

There would still be the problem of pressure from publishers wanting to cash in on foreign bestsellers, he said. But the effects of translators' squint—one eye in the ctock, the other on a pile of unpaid bills would be remedied.

Publishers were also at fault for chiploying poor linguists, he said, ses.
What was not clear was the extent to which publishers themselves tand decided. What was not clear was the extent to which publishers themselves tand declined in the past five years from one to 10 tu one to 12, he said. The and made it worse.

public assumes are tronslatious in as more schools reached their full

Apathy hits translation? Apathy hits description of the present poor stondard of translation and the present poor stondard of translation and the present poor stondard of translation according to Professor G. P. Builer, professor of modern languages at Bull University. The plight of unrealistic in view of public expenditure cuts. The professor of modern languages at Bull University. The plight of unrealistic in view of public expenditure cuts. The professor of modern languages at Bull University. The plight of unrealistic in view of public expenditure cuts. The professor of modern languages at Bull University. The plight of unrealistic in view of none of the york mystery pleys—the corporation of the sentence of an SNP MP, deplored, and hospitality which most scoils people feat and as such they ore harmful to that such they ore harmful to the obtaining to do with any official position of the party. Academic staff are increasingly doing more work because of scarcity a new system of tutoring which was hoped to reduce the number of with line lectual and scholarly life,

of resources, Dr Ted Edwards, vicesays lu bis annual report for 1975-

The worklood ambraced not only period, it had been agreed. teaching and research, but other functions auch as administration, the organization and mining of postexperience courses, giving adrice to inrending and potential atudents and supervising students both in research and on undergraduaco cour-

universty continued to expand with overall envolments up by over eight "To what extent, for example, ore publishers rather than transle tors to blame for the frequent cuts in hooks which the unsuspecting per cent, although the number of teaching staff only increased by 1.5 per cent, it would increase oext year

chancellor of Bradford University, drawals. The first full academic year in the univorsity, or an equivalent period for thin sandwich courses, should be ragarded as o siegnostic

Where a student was not likely to groduate, it should be evident by the end of the first academic year. "Within that year the stridents should be given every possible help to maximize their potential", he said. "The crucial period for many would be the first three weeks."

Several new sandwich courses had been Introduced, includi manufocium ng systems augineering, medical sciences, science and society, orchoeological sciences, public and social policy and peace studies. There were also plant for a course in manufacturing systems engineering with psychology.

Professor rebukes SNP critics

Scottish Nationalists critical of the number of English lecturers in Scotweek by a sellor professor al Edin-burgh University who is also a pros-pective SNP Parliamentary condi-

but the question was what they and

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Social scientists offer skills to industry

Much of the impetus behind the council's move to put social science to greater public use has come from its chairmon, Mr Derek Robinson, former deputy chairman of the Pay Board. Ha is excited about Open Dnor's possibilities of stimulating "genoide and high quality contentic research that is relevant".

In essence the scheme, at first in the field of measurement and indus-

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Gatwick: 7 nights and 14 nights to Secteld at the Hotel Kur, departing 15th, 22nd and 29th May; 7 nights from £113 pp to £118 pp; 14 nights from £168 pp to £177 pp.

Enton: 7 and 14 nights in Wilderswil at the Hotel Baren, departing 7th, t4th, 21st and 28th May; 7 nights from £114 pp (half-homed) to

£t20 pp [half-board], 14 nights from £183 pp (half-heard) to £183 pp (helf-bourd).

Garwick: 10 region in interlaken at the Royal Sr Georges, Separting 26th May, 1174 pp.

Luton : 7 nights, departing 7th, 14th, 21st and 28th Moy ; from £144 pp

Luton: 7 nights, departing 7th, 14th 21st and 28th May; tront £141 pp

Luton: 3 nights in Holland, departing on 3rd, 10th, 17th and 24th April; from £73 pp to £86 pp.

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1, 21st and 28th May ; 7 nights from £122 pp to £128 pp ; 14

ting 25th May 1374 pp. Linton 7 and 14 nights in Interlaken at the Hotel Interlaken,

by David Wulker
The Social Science Research Composition has innucled a scheme to put social science expertise at the disposal of industrial and comported firms, public bodies ond trade unions. The experiment, entitled "Open Duor", Is a new departure which shows the direction the SSRC has begun to toke in recent months.

Much of the impetus behind the council's move to put social science

Suce and much depends on the political limits. The visit last week of Mrs Williams, Secretary for Education, 10 the SSRC left little doubt that the imperatives behind the scientific research.

Yet Mr Robinson points on duat the debato in the schools shows the himbgleul and physical sciences undistribution of the imperuse of relevant research. Much of the recent discussion has been informed by research carried involved, have himbgleul and physical sciences undistribution to the himbgleul and physical sciences undistribution.

impurtance of relevont research. Much of the recent discussion has been informed by research carried not under SSRC ampices. Such work could well be defined as "palicy research" since it bears closely un

its chairmon, Mr Derek Robinson, former depony chairman of the Pay Board. Ha is excited about Open Dnor's possibilities of stimulating "genoide and high quality condenses research that is relevant".

In essence the scheme, at first in the field of management and industrial relations, is an open lavits ion to groups uf managers, executive officers or trade unionists to eonic to the SSRC with roughly sketched proposuls for research. Obviously, os Mr Robinson points out, the success of the scheme relies heavily on the intagination and contacts of the consultants oppointed by the management and industrial relations committee of the SSRC. But there is scope for similar relations committee of the SSRC. But there is scope for similar schemes in the economics, human geography ond plonning folds. Funding for the scheme is open ended.

Conditional relation of government decisions and the performance of institutions of general managers and opinions and the performance of institutions. But here the SSRC is rousidening a fresh juiditute.

Mr Robinson says firmly that the oscillation over the totoke a position on policy studies. Papers and opinions are of present flying through the SSRC box to toke a position of policy studies. Papers and opinions are of present flying through the SSRC's committees on the subject. "We essunt st, mut the debute, when the subject is something of white us."

In the assessment of government the circular of institutions. But there the SSRC is rousidering a fresh juiditute.

Closer links will be established the chemical engineering on distribution of the best three subject. "We count the subject is something to do with us."

In the assence that the performance of institutions of the best thicks. The proposition over the chemical engineering on application and the performance of institutions of the best thicks will be subject to the observation of the best three will be defined as "paper" in the session of the chemical engineering on policy studies. Papers with the tiest the SSRC is to the chemical Obviously, os Mr Roblison points out, the success of the scheme relies heavily on the imagination and contacts of the consultants oppointed by the management oud industrial relations committee of the SSRC. But there is scope for similar schemes in the economics, human geography ond plonning fiolds. Funding for the scheme is open ended.

Research needs to be relevont to the 1970s and 1980s. "My job in part is to demonstrate to the judy in the contact of the obviously of the scheme is being widely distributed and SSRC officials hope the first research proposals will be sent in by the end of April. The flelds offered include accountancy, eollective hargalining, financial management, industrial democracy, investment decisions, marketing, personnel management and the organization of work.

Users, in the sentencing to do with us."

In the meantime, the Open Door scheme will test the SSRC's flexibility when It enters to oponing up sociol science to the outside world, including government. A brochure deniling the scheme is being widely distributed and SSRC officials hope the first research proposals will be sent in by the end of April. The flelds offered include accountancy, collective hargalining, financial management of work.

Users, in the meantime, the Open Door scheme will test the SSRC's flexibility when It enters to oponing up sociol science to the outside world, including government. A brochure deniling the scheme is being widely distributed and SSRC officials hope the first research proposals will be sent in by the end of April. The fleeds offered include accountancy, collective hargalining, financial management, industrial deniuscreas, in the end of April. The fleeds offered include accountancy, and the control of including government. A brochure detailing the scheme is being widely distributed and SSRC officials hope the fitst research proposals will be sent in by the end of April. The fields offered include accountancy, eollective hargaining, financial management, industrial democracy, investment decisions, murketing, personnel management and the organization of work.

Users, in the shope of o group of managers, a committee, a trade mulon, consumer group, cherity.

beneficiol way. I also have obligations to the ocademic emistiuencies of the council to protect academic emistive political interference and intervention."

This balence between freedom and relevance is difficult to measure of the council way. I also have obligations are consumer group, cherity, trades cunnell and so on, with oproblem in these areas depending on professional research, will be encouraged to apply. Further details from SSRC Research Gronts Division, 1 Tomple Avanua, London EC4Y OBD.

This balence between freedom and relevance is difficult to measure the shope of o group of namagers, a committee, a trade minotion.

Travelling men the ground between sawing and acremination.

Travelling men to help project

Now chemical engineers opt for agriculture

involved so far, although prany agricultural processes are similar in principle to the industrial processes with which they are traditionally

Some 12,000 businessaten who trovel by nie or rall between London until the North-East are to take part in a Nowcastle University telegonymustership, regnand, preference communications research project.
Entitled "The Impact of Now.
Telecommunications Technology",
It is being conducted by the university's regimnal development Studies research group under the direction of Dr. John Buddurd, pro-fessur of regional development

They are haplity in find out the rolo communiculums play in regional developments, ospecially in regional developments, ospecially in business and sorvice industries. Professor Goddaril said: "Improvements in rood transport over the past 15 years have meant that most industrialists in areas like the North-East ore no longer of o serious disadvantage in terms of the edition of D. II. Lawrence's letters may be seriously delayed if recost and convonience of moving goods.

cost and convonience of moving goods.

"However, for businessmen who have to keep in close contact with head offices, customers and suppliers based in London end the south-eest, a peripheral location continvolve axtensive trovel and long absences from the office. This can result in deloys in dealing with pressing internal matters or in instance.

Opportunities."

Secretal anulter grant for their work.

The first of the seven voluntes, which are to be published by the Cumbridge University Press, is plouted for oext year, but the research has been funded by a £6,000 grant from the Leverhalme Trust which cooles to an end thus summer.

Opportunities."

Professor J. T. Haultun, of the English department and joint gen-

By examining husiness communications and thereby assessing the information areals of industry and commerce in the Nurth-Eost, the information areals of industry and commerce in the Nurth-Eost, the information in the Nurth-Eost, the information in the Nurth-Eost, the information in the Nurth-Eost, and although they were most; in telegromagnication might be reloted to other cegional policies.

Civil engineers will study road use

soriously delayed.

The research has two courses:
Birmingham and Texas. The fatter
was chusen because some 1,000 ml
the 5,000 Lawrence leners so for discovered are there, and also because
academics there had already undertaken extensive Lawrence coreagh.
Lecturars from a manber of other
universities, both in firstain and
America, are invulved on work on
the various volumes.

Professor Rauken with the

Civil engineers in the transport studies group of University College London have recently been given extensive grouts to examine various aspects of road treffic.

The Depertment of the Environment trensport end road research laboratorica have ewarded nearly 135,000 to Professor R. E. Alison, The money will be split into studies of how traffic volume affects how people use roads and into en enemissis of road uccident injuries.

The Science Research Council has owerded £12,500 to Mr J. G. Wordrap for research on junctions people use rouds and into en enelysis of roed uccident injuries.

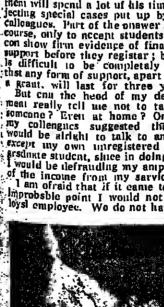
The Science Research Couocil hos owerded £12,500 to Mr J. G. Wordrup for research on juociloas and two-way roads.

White a number b. c.litions of callings that at least letters have never before the selected letters exist, this will be the first complete our, and research in index, bibliography and many that the first complete our, and research in index, bibliography and many that the first complete our, and research the selected first complete our the selected first comp

Hope springs geothermal in Bath scientific test



year. If une was not found, publica-tion of the volumes would be soriously delayed.





Bollet ; wider audience that seience

Don's diary

Rule change

Some new dountish dilemnas emerged in coffee-time conversation other day. With the increase in of full-time or part-time. Two years of full-time registration is required to qualify for a PhD, but most students have not completed their prodents have not completed their pro-ject within two years, so students whose fees are not paid from a grant have been allowed to continue for a third year paying only the part-time fee.

This rule has just been chonged.
Now they will have to ony the full foc for the third year, unless they

con prove that they are in regular solsried employment. Functh and

solsried employment. Fourth and subscincent years will still be allowed on the part-time fee, One of my colleagues has a student who cannot afford the new full-time fee for his third year. What should the student to?

"He should the student to? "He should not register", say some. "If he has paid two years' fees, he can finish his work unregistered, and submit his thesis when it is ready."

"Alright", says a college administrator for postgraduates, "but

whot about supervision?"
"Well, all this lad uceds is a chat
once a atouth and arcess to the lib-

"But how is that different from many other postgradustes who are paying the full fee? Are you, as an entployee of the college, entitled to

Spin writers at Bath.

Britain's best knawn hot springs, at Huth, are being investigated by chemists, from Hath University, as a possible source of useful energy.

They are included in a todiobasic ration, uranium and hereal study of the United Kingdon's geothermal energy prospects, financed by the EEC and she Department of Energy and administered by the EEC and the Department of Energy and administered by the Natural Environment Research Camedi. Russench teams at Cafart, loperlal (college, Landon, Hawell and the limit in this heart three also involved.

The Hath group, directed by Draints where the published sciences, will study the latt water course from the lepton and the mourseter. They will also ineven the mourset fathous mars in the Hampshire water summers in the summers of the valued of the summers water in the summers of the valued of the summers water in the summers of the valued of the summers water in the summer of the valued of the summers water in the s

opera and ballet are empyed by millions of people, but there are unly a few humberd of you high-energy physicists who enjoy thinking about quarks. You will never perstade the antivience people with that argument."

So I suggest that particle physics has made real progress largly. All the blind alleys of the lead in years are opening up. We are not just

are opening up. We are not just finding new particles, we are find ing simpler hasic theories, and that could lead to applications. This is the worst possible time to cut the

funding.
"We're heard that before. For "We're heard that before. For such abstrace research as yours it would take 50 years for any application to emerge. You're been daining great breakthroughs erei since the war. What about all that parity nonsense in 1977? That was supposed to be the 'key to the universe'. Now, 20 years later, you say you are just beginning to see tyly parity is violated."

I odmit that things have gone slowly for a while, but it is impossible to predict' the outcome of research. Maxwell had no idea that his obscure equations would lay the basis for the communications industry. Even as late as the early 1930s, Rutherford strenuously dealed that nuclear science enalth have any significant early applica-

have any significant early applica nave any agrifficant entry applica-tion. What we have is a harg-term equilibrium between fundamental research and practical applications. If you cat-off the former there will be an immediate consequences, but in 30 years it will make a blg difference.

difference.
"That is just the kind of suphisticoted argument that scientists always full back on, litt you have to realize that these critics do nut untierstand complicated things like long-term equilibrin'. It is out good enough. If there is no short-term pay-off, then how can you expect the millions in flow?"

I count this (to myself) os a tac-tical victory. But I know that the student I am talking to wanted me to win all along. He is probably worried about whether there is a place for him in pure science in the next few yeors.

equivalent to the Hypocrotic onth, but surely our responsibility to our distribute is more important in the could than our responsibility in the Do other people hare personal rules

about sleeping in lectures? My own codo would be ns follows: never sleep in o research colloqulum when I personally luvited or introduced the speaker; never sleep in the front row never speaker. end than any responsibility to the college. I hope and suspect that the real lest for most of us would unle whether the student hod hald his fee but whether his work was any diced the speaker; never sleep in the front row; never snore; novar wake up a sleeping colleague.

I can not remember over having broken these rules, though I do count sleeping in seminars as one of the pleasures of life. If sleep wants to come then it should not be found.

David Miller

The author is lecturor in the department of physics and astron-only of University College; London.

My country



Martin Trow

bappening on American compases in rerent years might be summurized this way; for a period of seven or eight years in the 1960s and corly 1970s, starting out in Berkeley in 1964, there was willespread turbulence und disruption directed both of the forms of education on conpus, and changes in American policy overseas, especially almed or ending our military javnivement in Viet-

This broad movement, so this plcture goes, was marked by o political swing to the left among college and miversity teachers and students. With the end of the droft and direct American puricipation in the war in Vietnam, the climate on campus changed sharply; it because less politicel, more ronservotive, and centred more nu teochlug and study.

In addition, in the face of the sharp economic recession of 1975, the mootl on campus became rather mora sober and sarious. The students become increasingly anxious about the dongers of unomployment

was less charge in opinion on anti-wer independent or my tongue.

Sleepers in the audience for my own talks do not worry me much. Some msy even be quite entertaining. Thera was a senior physicist in one of the SRC laboratories who loiled his head and hung bis jinvin a most uninhibited way. Even when he sot at the bock you could rely on knowing when he dropped off, and it wes even eesier to tell when he came to end tried to essume this air of one who hos been listeoing all elong.

The other two, went to sleep for tha major pert of my talk. To doal with his speciel case I would suggest I opinion and entineut the mass need and hosteved.

Was less charge in opinion on anti-were cheen the camputes believed than is the chert wo, went to sleep for the major pert of my talk. To doal with his speciel case I would suggest I opinion and entineut then the chert two, went to sleep for the major pert of my talk. To doal with his speciel case I would suggest I opinion and entineut then the content two, went to sleep for the major pert of my talk. To doal with his speciel case I would suggest I opinion and entineut then the content two, went to sleep for the major pert of my talk. To doal with his speciel case I would suggest I opinion and entineut then the samples of students and toachers in American colleges and universities should suggest the major pert of my talk. To doal with his speciel case I would suggest I opinion and entineut then the samples of students and toachers in American colleges and universities of the commentative of

When we asked students and faculty numbers "This would can characterize yourself politically at the present time?", and offered them a fire point scale from "left" to "strangly conservative" along

hasic political identifications

that period of time.

which they could be are themselves, the different groups showed very similar distributions. Even in 1969, at nearly the height of the disturbafter on campus, no more than one in 20 undergraduates, graduate students or teachers called themselves "left", and the proportion was no higher in 1975.

"left", and the proportion was no higher in 1975.
In 1969 about two out of fire in all three samples called themselves "liberal"; about our in six undergradures and one in four gradures and tearlets called themselves "muderately conservative", only 3 or 4 per cent called themselves "strongly conservative", and the rest, between a quarter and n third of the graduate students and teachers, and nearly two-fifths of the undergraduates, colled themselves uniddle of the rood".

chers, and nearly two-lifths of the undergraduates, colled themselves "middle of the rood".

The distributions of political self-identifications shown in the table remind us first that the politics of American academics and students, even during the height of the demonstrations against Victuate, were still very moderate: in 1969 as in 1975 over 90 per cent of oll three groups were in the middle three political rategories.

Second, the data show a quite remarkable stability over the six years between 1969 and 1975. Tho undergraduates show a slight shift from the liberal to the moderate conservative category, but the graduate students und college and university teachers show no significant trends at all, given the reliability of these kinds of data.

And third, there is a tematkable similiarity in the distributions among these three groups. The graduate students and the teachers are very close at both times; the undergraduates differ not in being more or less conservative than the other turn grants but in the college and the other turn grants but in the college and other turn grants but the college and turn grants but the college and turn grants but th

under graduates differ not in being more or less conservative than the other twn groups, but in their somewhat larger proportion who see theuselves as "middle of the road", perhaps not surprising for overy large group which is on the whole both younger and icss politically committed than the others.

others.
For comparison, the Halsey/Trow survey of British university teachers a chance to locate themselves out a five-point scale with somewhat different lobels; far left, moderate different lobels: far left, moderate left, centre, moderate right. Tha distributions along that scale were not very different from the American fluidings five and if years later: only one in 20 in the far left category, nearly half in the moderate left, a little over a quarier in lite centre, about one in five in the moderate right sud only in per cent who identified thomsolves as for right. This olmost exactly matches the distribution (in the five American categories) among tea-

	Undergraduates		Greduates	Students	Teachers	
•	1969	1975	1969	1975	1969	1975
eft	5	. 3	5	6	5	5
Joeral	39	32	37	37	40	36
iddle of the road	37	39 ·	27	30 .	27	28
ioderately, conservative	17	,23	27	24	25	. 28
trongly cunservotive	2	3	4	3	3 -	3



NOTICE BOARD literature in the department of Spanish and Portuguese Studiest. Mr. R. D. Whitley parcialogy by the Manchester business school and in the faculty of fusiness school and in the faculty of fusiness administration!; Mr. Jonathan Stewart (econometrics]; Br. C. D. Ellion (redocation); Dr. B. N. Aspin (the philosuphy of education); Mr. Dana M. Kloss (law!; Mr. B. K. Floombe (minsic); De. D. D. Drucker (chemical baterbilogy and etrology); Thomas Fryers [community medicine); Dr. D. M. O'Mullane (chology); Thomas Fryers [community medicine); Dr. D. M. O'Mullane (children's dentistry); Dr. F. F. Chikotal (occupational hyglene); Dr. D. I. Somthern teytology in the departments of hotany and zoology); Dr. R. T. Brown (chemistry); Dr. J. F. Dickle und Dr. R. C. F. Dwelengliceylug1; Dr. A. C. Doutham (geology); Dr. R. D. Johnston (fiberal studies in science); Dr. R. D. Geogary (mathematics); Dr. J. P. Hodgson (the mediantics of thibbs); Dr. Dacid Attarool (pharmacy); Dr. L. W. Shepherd (physics); The Rey S. S. Smalley (New Testament studies). Title of senter lecturer: Dr. A. J. N. W. Prag (keeper in archaeology in the Manchester Museum), Lecturers; M. W. F. Glander (accountiling); Robert ("accountiling); Robert ("accountiling); Robert ("accountiling); P. J. Davies and P. W. Smith (law); R. S. Sylvester (mathemedic surgeev); R. L. Weth (otolatragology); J. C. Whitcheal (chemistry).

λppointments

Mc T. R. Owen, reader in the department of geology at the University College of Swanses, has been awarded a Dr G. If. Whitehouse, senior lectures personal chair in geology at the univer-dry from April 1, 1977.

Forthcoming eyents

The urban (aformal sector in the Third World", a one-day conference organized by the developing areas sinty group of the Institute of British Geographers, will be held tonders wat the School of Oriental and African Studies, University of London, Non-members welcomed. Details from Dr. R. J. Brombey, Centre for Development Studies, University Codlege, Swansee, Singleton Park, Swansea.

Dr J. E. Olling, senior lecturer in the department of amesthests at Liverpool University, has been appointed to the chair of anaesthesia at the infectity.

In the department of radio diagnosis at Liverpool University, has been ap-pointed to the newly established chair of diagnostic radiology at the univer-

sty from April 1, 1977.

De Paul Thompson, a social historian, has been appointed Hoffman Virola professor of architecture of Leeds University. In this partition past he will take part in the reaching and research programmes of the department of fine arrand give public lectures.

Professor C. W. Rees, until retently hader of the second chair of organic chemistry or Liverpool University, has been appointed to the Heath Harrison chair, the senior cheir in the university's department of organic chemistry.

Liverpool University, has been appointed in all university. In this partition past to the newly established chair of diagnostic radiology in the university. Mr. Dorth John Palmer, of present senior lecturer in English at Itali University has been appointed in a chair of English literature at Moochester University from October 1, 1977. He succeeds the late Professor J. D. Jump. Dr. A. J. F. Webster, principal vetering ary research officer at the Rowett Research institute, Aberdeen, hus been appointed to the theath art of milital linshandry at Bristol University. He succeeds Professor Ewer.

Abertieen
Promotion to sentor lecturer: Itavid
Donald (pathology), Promotions to lecmore: J. Petersen (therapenties and
clinical pharameology); I. R. M. Ralston (geography); B. Augus, N. J.
Balch, John C. Clark and S. Lessels
(nothology), Temporary lecturer:
D. G. Dowd medicine). Research fellows: V. W. MrLean (blochemistry);
V. Lazarev (forestry), Visiting fellow:
V. V. Hynkhin (chemistry), Research
assistants: N. Greig and A. Nell Nivon
(education); D. Kennedy (forestry);
R. Mant (medical physics), Programmer/research assistants: R. C.
Christie and J. Steel (conveyancing and
professional practice of lav).
Altervstavith "Intages of Women in the Media", a one-day conference for all those towersted in the process of the publication and the representation of women in the media, will be held tomagrow at the Polytechnic of Central London. Speaker, include: Alisan Leigh (Westward TV1, Jane Rued (Editor, Promen's Oron), Suzonne Lowry (Women's Editor, The Goardian), Suzanne Davies (TV producer). Fee: f3, stodents f1.50. Further details from Netra Swalinw, Short Course Unit, PCL, 309 Regent Street, London W1. Aherystaryth Honorary professorial tellows: Hum-phrey Sewie and Mansel Thomas Inustri. Durham

Personal readerships: Dr Kenneth Wude (chemistry); Dr John William Smeed (German); Dr David Michael Luades (history); Dr John David Thomas (popyrology), Deems of faculties; Rev A. Geisten (divinity); Professor T. C. Waddington (science). Mauchesler

Swansee, Singleton Park, Swonsea.

A teach in on photojournalism will be held on March 23 in lecture theatre 1, Calling Technical College, Speakers are: Truin Picron, photojournalist, such of Central London on March 24, Control (horgenerics), Royal College of Art and G. Whod-koyal College of Art and G. Whod-koyal College of Art and G. Whod-koyal College of Early of the Physical London on March 1949. Promotions in senior lecture: 19-20 and April 2-3 respectively. Fee: 8 (44 for those under 18 and in full-limite clucation). Further details from Finite Webster, lecturer in sociology, Branch Webster,

Allied Mourhouse plassin tody

Polytechnies |

South Hank Hearls of departments; Mrs M. O. Heads of departments: Mrs M. Ow-ther (hume crottonics); Mrs L. E. Leach (husbress studies); D. A. Kipa Jelectrical unit electronic enginering Alles G. M. Owen (mursing and or munity health studies); C. B. Bosin (hostianes) Wniverlinantion

Head, department of computing at mailtennatical sciences; Mr Anno.

Colleges Chester Callege of Higher Deputy principal : Dr Grace loses.

Peterburungh Technical College Principa) : Mr Patrick Sheen, Smillilands Deputy principal Mrs from Ellous.

General Scottish Universities Countil on Entrance

Professor S. G. G. MacDonald has be impolited concener from Orobe 1 1977. Professor MacDonald, vicepi cipal of Dundee University, has be deputy convener since 1973. Association of County Councils
Air Peter Cules, education office &
development with the West SusFounty Council, has been appoint
Uniter-Sectionary (Education) for
April 1, 1977.

Noticeboard is compiled by Patricia Santinelli B. L. F. Boltes (cream) and Pauline Gamble

The propher of thom is usually agnored, especially if he is a scientist. Two many predictions have proved to be chimeras, normany duomidays have come oud gone to excite much interest. But the nightmare of one man trapped is a taxi in Delhi some years ogo is one that gripped America. What Ir Paul Ehrlich then sow: o seething mass of starving people everiacreasing until caustrophe: spaceship Earth blown up by the population bouch.

pe Ebrlich, as on ceologist, had Dr Ebrlich, as an ecologist, had glways realized the problem incllectually; has used to tecture at Stanford Duiversity on the consequences for evolution of demographic trends. But in a Delhi slum he understood overpopulation
conationally and he began talking
about it at almost meetings, and
an incul radio stantants.

In 1963 he dashed off a popular
took to try to influence the presidential election. It made on difference at all long it fild get him an
invitation to appear on prime-time

nvitation is appear on prime-time television in 1970. Overalght Ebrlich became n

Overright Ehrlich became a public figure. His cloquence, knowledge, passion, rharm and releatless are of cubl statistics—population trends, fand production, hirth rates, death rates and the depletion of natural resources—established him immediately not just os a leading advecte of papulation control, but as a lender, of the whole environmental invocatent that was then sweeping the country. His back The Population Round herau then sweeping the country. His book, The Populotion Bomb, began to sell millions of copies,
Ehrlich accepted the montle of leadership, He took port in debates,

appeared on television, organized compaigns, testified at hearings, read, researched, lobbied, trovelled, read, researched, lobbied, trovelled, lectured and wrute. He was a pioneer in the fight against the use of pesticides. He became deeply involved in the fight against nuclear power steints, taking ou congressmen, scientists and big corporations, and he inhibit against the building of an American supersonic plane. He spake out against energy woste. And he came back again and again to his major concern: oversounds. to his major concern: overpopula-

"The battle to feed all of humonity is over", he said storkly at the beginning of The Populoiou Bonh, "in the 1970s and 1981s hundreds of millions of people will starre to death in spite of ony crash programme embarked upon now.

"Nothing could be more misleading to our children than our pre-

"Nothing could be more misleading to our children than our present affluent society. They will inherit a totally different world, a world in which the standards, politics and economics of the past decade are dead. As the most influential antion in the world today, mail its lorgest consumer, the United States cannot stand isolated. We are today involved in the events leading to furnise and ecocatastrophe. Tomorrow we may be destroyed by them."

America had to take immediate action of home ond promote action abroad. Population control had to

abtood. Population control had to be introduced, by compulsion if necessory. "The birth rote must be brought into balance with the death rate or mankind will breed liself lote oblivion."

He outlined the urgency with statistics. The world's population at the time of writing in 1968 was doubling every 35 years. If this rate continued, it would mean that in 900 years there would be 60 million billion people on earth: 100 for every squera yard of land and see. Theoretically it might be possible to cover the entire placet with a continuous 2,000-storey building: beyond that it would be impossible to radiance onway the heat generated. If current wends continued.

Spaceship Earth is still out of control but you can save yourself says Paul Ehrlich, ecologist and author of The population bomb, in this interview with Michael Binyon

what I think can be done", he said in an interview. "The reason is that oll demographers were very pessimistic about the rate of which birth rates could be brought down

Gospel of doom according to Paul

One frame that did draw them to gether, however, is inclean power. Ehrlich has been a passimate opponent of this, and in recent years made it his major preoccupation. "It's the kind of hattle that if low is going to make the rest of the context o

all is lost. Yet he is intensely active in trying in rally things at the eleventh hour. He founded a gamp called Zero Population Growth 12PG) to press for pupulation applications. In the as self-sufficient as intenselves this press from population applications to the population of the population applications to the process for pupulation applications to the population application of the population and the population application of the population of the population and the population of the population of the population application of the population of the population application of the population of the population application of the population and the population of the population of the population application of the population of the population application of the population of the population application of the population application of the population of the population of the population application of the population of the population application of the population application of the population application of the population and the population application of the population application of the population of the population application of the population application application of the population application application of the population application application application application of the population application app

bitterly attucked for their uttitudes to contraception and abortion.

The National Academy of Sciences was led by a group of incompetents —and scientists and technologists

—and scientists and technologists

Everything we do lowards destroying and environment uses lots of ing the environment uses lots of energy. What we're diding is taking a socially aring kind of energy sys-tem and bringing It on line and using

extraordistrily dangerins technologies".

Edificit has lectured oil over the country on nucleor energy. He played an importour role in the fight to stop the development of inclear power in Cullfurnia—a proposition that was healen at the polts in November when voters defented a ban but which has heartened him into believing that nucleor power countries on the population.

He is not a ultysicist—he had to

He is not a physicist—he had to teach himself nuclear physics, with the help of some excellent teachers at Stanford, and he did so with such thornogliness that he has naver found difficulty in deliating while the so-called experts, nor yet been taken out of his depth on technical dentils.

our of his depth on technical densits. His involvement in the nucleur question is a good exomple of how far his ecological commitment hos taken him. Ho is, first one forcmost, a blologist and his reol love is still biological research. A graduate of the University of Pennsylvenio, with a PhD from the University of Kansas, Ehrlich's liver fight with outhority was in the 1950s. At that time the Department of Agriculture had a plan to spray millions of acres of the southern United Stotes to try in erndicate fire onts.

to try in erndicate fire onts.

Ehrlich was horrified—" Tho Ehrlich was horrified—"The chemical was guaranteed to do everything except whas out the fire aut."—and wrote letters to the department. He organized protests, to no ovell—the spraying tyent ohood, the ecological damage he had increast was done, and the progremme, again as he forecast, wrs on expensive induce. His auger was aroused.

oroused.

But in all his subsequent can-But in all his subsenient campoigning ha has still done his full still of toaching undergraduotes human hinlery at Sinnford and he has orainished his research on butterfly populations and work on the interoctions between plants and plant-eating insects. This has not been easy: if has meent on enormous amount of hord work every avening and every weekend.

credibility in my own discipling but the notion that you should stick in the area you are trained in can only be held by people who are in dead areas of science. For histones I draw ou slower nothing from long trein-ing in my area of specialty, except for save statistical techniques. The field has chonged an much that you field has enonged an much that you have to stay up with what's going on oud spend an enormous amount of time studying continuously.

"One could enter my area if one

is willing to put time into educating oneself end being odnesied by other people. It carries cermin visks, but if you don't take those risks, you stry neited in your own little discipline and robody covers die important things that are going on between the disciplines."

continued on next page

Open University programmes March 19 to March 25

Saturday March 19

7.40 Countex Agalysis: Exponential and 12.40 [Agariling 1415/2]; 14700 2); Making Sellysis (Section 2); Greensey Making Sellysis (Sellysis); 142.06 [Agariling 1415/2]; 14700 6; 142.06 [Agariling 1415/2]; 142.06

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Patients Tradition of the Patients of Age); programment in the Patients of Age); programment in the Patients of Age).

Monday March 21

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15.10 Finite Foundation Courter Almort Foundation Found

Junior research fellows: R. S. Ward (mathematics); R. J. Nicholas (physics); B. H., Ward-Perkins (mod-ern listory). Sendor schoolses: R. M. Hendry (clinical medicine); J. Kerd-gan (English language and inerature); C. A. Picon (classical archaeology).

Oxford .

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PARIO 3 [MMF]

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Dulit (21 | Pasis | Proc. 5).
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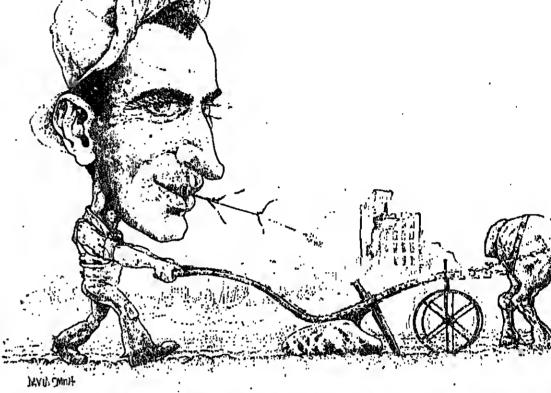
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Friedman A Californ and the control of the control

Friday March 25

The Divergeneral of Instrument of there shows the Committee of the Committ

(1). Ninsternth-Contury Note # 16 Largety: Colories During # 15 Largety: Colories During # 18.



In the United States, and thought it would take decades.

"It turned out with the appropriate propaganda and other circumstances to take only about three ulmost everything we have to do involves large social change and if you can see lorgo social change and if you can see lorgo social change the ripe and going very rapidly then you can ot least moke the assumption that in the other ordes where we need really larga social change that it could occur rapidly.

"On the pessimistic side virtually everything is still running downlill to the bosic lambakances in our least moke the resuming downlill to the bosic lambakances in our form of governmental reorganization to the bosic lambakances in our least psychological weopous, poison gas, brainwashing, electronic surveillence and it computer fident delumentated society. In the continuous trapy, it can only help. Every individual who has a farm, garden, or alizable reserve of food will be one least person scrambling for the limited supplies in times of abortist government, regardless of who is in puwer". Therefore were two laws of nost-industrial government power intentions put the toricring and given them "snog, pesticide and given them "snog, pesticide polition, sonic homas, nuclear missies, biological weopous, poison gas, brainwashing, electronic surveillence and a computer-fidden delimination of society. In the toricring for the trapy, it can only help. Every individual who has a farm, garden, or alizable reserve of food will be one least person scrambling for the limited supplies in times of abortist government, regardless of the polition, sonic homas, nuclear missies, biological weopous, poison gas, brainwashing, electronic surveillence and given them "snog, polition, sonic homas, nuclear missies, biological weopous, poison gas, brainwashing, electronic surveillence and given them "snog, polition, sonic homas, nuclear missies, biological weopous, poison gas, brainwashing, electronic surveillence and given them "snog, polition, sonic torm, sonic torm, solice the mis

to could occur rapidly.

"On the pessimistic side virtually everything is still running downhill at an accelerating rote. You look at the United States and see the unter incompotence of the country in coming to grips while the energy crisis, or Britoin's onwillingness to see up to the limitoions of the economic situation on the same ding repeated around the world."

Undoubtedly Ehrileis stresses that dark aldo so that people will listed: it worked in university lectures and it works on television. He has been accused of being a neighbours, you may, find assistance in the large and professional pressimist—a label he professional pressimist—a label he group here at Stanford I'm an interest of the state and content of the state and cooperation. The Ehrlich themselves have not interest to the limitoion of the same accused of locing and research.

"The time has come to face up to the bost limbalance in our solvent until the attitudes and no form of governmental reorganization of severny mental recogning of governmental reorganization of the still transport the bost limbalance in our form of governmental reorganization of the still transport the basic prosition and our content of the still transport the personnal and our content of the personnal transport in the severy seekend.

"I model the every mecked in unit these problems to be only of the attitudes and not consider this reliable to the distinct of the attitudes and not like the clitizeury hud been of the elitizeury hud been on the situation of the elitizeury hud been of the clitical stuff content of the attitudes and notice until the elitizeury hud been of the elitizeury hud been of the elitizeury hud been of the elitizeury hud been on the situation of the elitizeury hud been of the elitizeury hud been of the elitizeury hud been on the situation of the elitizeury hud been of the elitizeury hud been of the elitizeury hud been on the situation of the elitizeury hud been of the elitiz

generated. If current trends continued, Calcutta would have 66 million lobubitants by the yeor 2000 alone.

Ehrlich then outlined the growing strongle to try to feed the world's language, the uncontrolled exploitetion of the land, the poisuning of the considers the ballgama to be the possible end of it oll, which he possible end of it oll, which he possible end of it oll, which he grainised in three seenarios: two grisly owes of plague and nuclear indicants, and une utopian depletion of unprecedented international edge the was in no doubt which was the least likely. Yet, for all inspectation.

This Ehrlich themselves have not dropped out. Paul wishes ha could with the post where but it is not his style.

He ls. profoundly distillusioned with the system. Indeed, in The End of Afflicance he attacks almost every political and government in the far right, but I think the right the far right. He is profoundly distillusioned with the system. Indeed, in The End of the form the far right. We have been solutions.')

But he does not believe in the far right and the far right and the result of the form the far with the system. Indeed, in The End of the form the far with the system. Indeed, in The End of the far with the system in the far right and the far right a

F Ç , agent.



At a quiet corner of Taylstock Square,

Bloomsbury, in a pleosam Regency-style building, are the offices of the Commuter of

Vice-Chancellors and Principals. Although it has existed since 1918, little is known alrow

the committee's work by those outside—and sometimes even inside—the universities.

It describes itself as a consultative and advisory bady, whose role is to "reflect the role

fective views of universities" and "keep all major university matters under review". In

has no namedatory, official or statetory posi-tion and its budget of E370,000 a year comes entirely from contributions by the universities in receipt of funds from the University Grants

Membership comprises the 42 vice-chancelhas and principals of these universities. The two in Morthern Treland, which are advised

by the UGC although not directly financed by it, are also meinters. In addition, the vicechancellar of the Open University, which is funded directly by the Department of Educa-

tion and Science, was invited to join in 1973.

The full committee numbers about 60, because there are additional members such as London Driversity's principal and the heads of its schools; principals of the colleges of the University of Wales and of the University of Manchester Institute of Science and

Technology. The registrar of Oxford and registrary of Cambridge also attend.

The l'ommittee has its origins in the pre-

ties, then the Universities Boreao of the British Empire. For many years it was only a very small office within the ACU, and not till the 1950s and the beginning of university expansion, did it grow to resemble his present size and acquire its own secretariat. For legal porposes, however, it is still a standing committee of rhe ACU; its property is held by the association; and staff are, strictly speaking, employees of the ACU.

For all practical purposes however it is a separate organization. The full committee meets nine times each academic year, Attendance is high, with each meeting attended by 99 per cent of members. The full committee

is supported by a general purposes commit-tee of vice-chancellors, which usually meets once a manth to coordinate the CVCP's busi-ness, discuss and effect its recommendations

and review motters of current concarn. There ero also four standing committees, each comprising a small number of vice-chencellors: finance und development, acodemic affairs, staff and student matters, and international university affairs.

Each year the committee elects its chairman (at prasent Sir John Habakkuk, vice-chancellor of Oxford), vice-chairman and treasurer. The chairman normally holds his

At Taylstock Squara Itself are the perma-

created in 1974. The exacutive secretory is Mr Brian Taylor, and there are four assistant

sent Association of Commonwealth Universities, then the Universities Borego of the Brit-

by Frances Gibb

Centre helps boost productivity on the shop floor

Ian Bradley looks at the work of Sheffield Polytechnic's Centre for Inpovation and Productivity

There cannot be meny polytechnic departments which linve heen the jubicet of hostile questions in Pardepartments which move the fate of subject of hostile questions in Parlianenr, but this was the fate of sheffield Polytechnic's Centre for Innovation and Productivity resently after publication in The Fines of u latter by its director, Geoff Wood, calling on Britain to ston subsidizing obsolete manufacturers of the centre's staff designed and built a mochine to do the job. an exporting services. Incensed by this ettack on industry, Peter Hardy, one of Sheffield's Labour MPs, inbled a Commons question asking Mrs Shirley Williams how meny such centres for innovation and prosuch centres for innovation and pro-ductivity there are hi the country

In fact, the Sheffield centre is unique. It is also rare among aca-demic institutions in this country in covering at least holf its costs through revenue from its services. Established in 1971 as a department of the polytechnic, the centre provides information, odvice and assistance on management of the polytechnic in the centre provides information. ance on management and technical malters to industry and commerce in South Yorkshire. Fees for the tonsultancy work that it has done in the past four years, largely among small firms, have brought in £150,000. It has elso built up a national repotetion in the field of

The centre is an amalgamation of three inetitutions which previously coexisted at Sheffield Polytechnir. coexisted at Sheffleld Polytechnir.
The Industrial Llaison Centre was one of 70 set up in 1964 on the recommendation of the then Ministry of Technology to provide a refarral service to introduce local films to sources of advice and assistance. The Automation Advisory Centra was established in 1968 to encourage the wildor adoption in Industry of low-cost automation techniques. The Smoll Firms Centre was established in 1971, Heving worked we control in 1970 to provide a saistance to local small businesses. Whilo most of the then the supplication of the new control in 1970 to provide a saistance to local small businesses. Whilo most of the supplication o

the other industrial linison centres closed in 1973 after the Conservative Convernment withdrew their grant, Sheffield Polytechnic kept its going by incorporating h Into the new Centre for Innovation and Productivity Productivity.
The separote functions of these

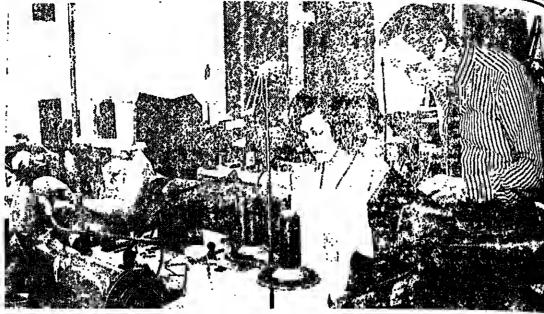
three original justitutions are now divided between the centre's 14-strong leadt. The automation advisory service is particularly successful, and runs at a profit. It unerates at two levels, urganizing training courses and exhibitions on

mochine to do the job.

The nutomotion advisory service is sited in Sheffield Polytechnic's engineering department, with facilities for making prototype machines and with secess to a wide runge of engineering skills. It has ploneered new techniques of applying hydrnulics and pneumatics to low rost pressing machines, and the Department of Industry has chosen the centre as the venue for a series of seminars on the industrial applications of oil hydraulics. hydraulles.

The centre's Industrial liaisnu ser-The centre's indostrial liaism service continues to hundle queries from minufacturing und commercial concerns in Somb Yorkshire. It has organized seminars and conferences in sobjects like the Employment Protection Act. Like the nutomation advisory servico, it also helps local firms with specific problems. After a complaint from a small electronics company that it rould not recruit aufficient workers, the centra used videotape equipment to film work on the assembly line and discovered that one third of the existing workforce's effort was wasted.

It is the Small Firms Manuaement



Small businesses benefit from the centre's consultanry service,

Impossible for small concerns to entiple management consultants, and realized that consultantcy services for them would have to be subsidized. The divertorship of the Centro for lunavation and Productivity enables him to run what is in effect a subsidized service of management consultancy for small making them realized that they are being educated, and mantes aparty.

He decided that it was economically professional if they have a problem

management consultancy for small businesses.

Geoff Wond sees the rentro as fulfilling an edocational as well as to consoltancy function. He feels that management courses at polystic technics and husiness schools have been geared entirely in the needs of large firms and have fulfilled to make any impression on the one million small firms which are still the borkbone of the British economy.

Althoogh the managers of small firms (le, those employing less than par cent of British management, they form only around 7½ per cent of those doing diplomas of managers have been persuaded to rame to of those doing diplomas of managers and business schools.

As a direct result of their neglect that they are making them realize that they are being educated, and quantes approve ingly Pope's maxim: "Men must be taught as though you taught them ant, business achools have them ant, business achools as things furgor!".

To achieve this they are point them must in them ant, and things unknown exposed as things furgor!".

To achieve this them must be taught as though you taught them ant, business achools have them ant, business achools have them ant, and things unknown exposed as things furgor!"

To achieve this they are posed as things furgor!"

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polytechnics and business schools, as a direct result of their neglect by the management departments in higher education, Mr Wnod osserts, small businesses in Britain are defining, in marked contrast to their performance elsewhere in the world.

economic nail management

As well as calling for as concentration on services floated the idea of having tree fees for executives simily but for professional footballer, at he brilieves would coccurage for brightest recruits without feet heavy lasses if they moved by other firm. At the moment he preaching the dactrine of the value, which he thinks tould be key to producing an acceptable and a fire productivity agreeme. and pay claims in phase 3 of t social contract. The Government quite likely to take outce of hills opinious no Industrial and a montic questions have already be sought and used by the think tal

Gouff Wood has made his ees vative and productive on a rend able scale. Its achievement in hi-ling the worlds of higher course and undustry has been impress see closer contacts between the

Meanwhile he is cauting our at Sheffield Polynechnic certainly seems to have achieved a happy blend between management clineation and consultancy.

These artivities give the staff at the centre little time in engage of research. Genff Wood, however, has managed to twick several looks and a hast of articles on a wide range of in the world of higher educated and that we will be dissant;

undertaken by universities acting togethor than individuelly. Sub-committees and working parties, usually chaired by a vice-chancellor and drewing on expertise from ecede-Verious research and reports result from these groups. The CVCP recently produced a memorendum of guidance in the light of the Health and Sefetr at Work Art, 1974, and advice on the implications of the Employment Protection Act, 1975. It also produced guidance on Value Added Tax.





Men at the top: left, above, Sir John Hahakkuk, present CVCP chairman; below, Lord Boyle, who is to succeed him; right, shove, Dr Arthur Suddaby, chairman of the CDP; below, the man he succeeded, Sir Alex Smith, present chairman of the Schools Council.

The committee therefore arta as a two-way channel of information; informing the universities about matters which might affert them, and telling the outside world about their work. The former is doon by means of "briefings"; weekly resumés of press repurs, DES statements, Hansard; and the latter by statements to the pross on behalf of all universities.

Internacionally, the committee keeps in contact with other university heads, particularly in Europe and the United States. This is because rolations with universities in other chuntries officially come under the aegis of the ACU. It porticipates in the European Rectors' Conference and the Lialson Committee of Rectors' Conferences of the EEC.

Various offshoots have sprung from the CVCP's role of idsutifying common university problems. The main ones are: The Standing Conference on University Entrance (1968): considers matters of concern such as curriculum changes.

post for two years. He in turn puts forward proposals for the heads of the various sub-committees who are rotated, as are the Tha Universities' Stalistical Rerord (1968): s computer-bosed information system containing details of all staff end students at UK oniversities, within the organization of the Universities Central Council on nent staff. The secretariat, of some 20, is headed by the secretary-general, Sir Roy Marshall, formerly vice-chancellor of the University of the West Indies. This post was

• The Universities Committee for Nonteaching Staffs (1970): conducts negotiations on poy for technical staff and represents universities in central machinery for negotiating with appropriate unions on stherespects of the employment of technical, Mr Brian Taylor, and there are four assistant secretaries, supported by 12 administrative officers. The assistant secretaries have arens of responsibility roughly akin to the four main areas of the committee's work.

The keynote is informality. The CVCP has no official relationship eithor with the Government or with the UGC, although it consults both. In a recent report on its work between 1972-76 the committee said: "No rules exist and none is required if the committee is to be able to react flexibly to changing situations."

The Universities' Authorities Pauel (1970]: conaists of vice-chancellors and lay members of councils, and represents the universities and employers for the purposas of the new negotiating machinary for academic staff salaries set up following discossion between the noiversities, the AUT. UGC and DES.

in making representations or responding to consolictions.

In making representations or responding to consolictions the committee observas en classically consolictions the committee observas en classically publishes vacancy, lists and also committee releting to the internal affairs of any matter releting to the internal affairs of a resistance of the committee are consolicted and the committee of the committee In making representations or responding to consolietions the committee observas en inflexible role; "It does not become involved to any matter releting to the internal affairs of a particular university. Its activities are directed to the edvancement of the university.

Advisory pervices (15/4), altered and allege inflexible vicency, lists and allege influences. The publishes vicency, lists and allege influences. The publishes vicency, lists and allege influences also participate in its work.

The Universities' Centrel Council on Admissions was set up in 1961 as a rasolt of system as a whole."

In addition to making representations to the DES or UGC, the CVCP has informal meetings with the Secretery of State for Education and Science, which have been more frequent since the ending of the quinquennial system of fittenedity.

The second and equally important part of the committee's work is its role as a facus for activities which are more effectively undertaken by universities acting togethor than individually. Sub-committees and work.

The next five years linve seen an important that the CDP should not be a first publication of the committee decided to approach the CNAA about the question of the committee decided to approach the CNAA about the question of the polytechnics becoming self-validating institutions. This was of the committee's work is its role as a facus to provide a first publication of the polytechnics becomes the committee decided to approach the CNAA about the question of the committee decided to approach the CNAA about the question of the polytechnics becomes the committee of the committee decided to approach the CNAA about the question of the polytechnics becomes the committee.

Committee decided to approach the committee acting the committee.

The second end equally important part of the committee, both now published on its benefit be committee.

Committee decided to approach the committee.

Committee decided to approach the committee acting the committee acting the committee.

At a sacoud meeting three months later the committee decided to approach the committee decided to approach the committee decided to approach the committee.

Committee decided to approach the committee.

At a sacoud meeting the committee decided to approach the committee.

At a sacoud meeting the committee decided to approach the committee.

At a sacoud meeting the committee about the committee decided to approach the committee.

The committee acting the committee and about the

undertaken by universities acting togethor than individuelly. Sub-committees and working parties, usually chaired by a vice-chancellor and drewing on expertise from ecedemics, edministrators and other experts, exist on a number of topics, such as pensions, rating, aafety, VAT, atudent awards, boildings and medical metters, and new ones are constantly set up.

Verious research and reports result from these groups. The CVCP recently produced a mentorendum of guidance in the light of the Health and Sefert at Work Art, 1974, and advice in the implications of the Employment. that the committee, as the body where these problems are diacussed, will become of increesing importence in the future."

It was only in 1972, after long discossions over the possibility of funding being channelled directly from individual local antionities that it was decided that finance should cope from the advanced further education and with the larger fundaments. toud with the Inner London Edocation Authority acting as "agent".

Mr Peter Flowerday was appointed to the must of secretary the same year. His staff to, the first 12 months was made up of one administrative assistant, later increased to two, and one secretary, a tiny establishment to cope with the baorgeoning demands on the CDP and its rapidly expanding sector of

education.
Today the annoal hudget stands at just £30,000 and the full-time staff establishment is still only four. Although it is a comparison the CDP is loathe to make, the funding allocation and the staff establishment numbers are decidedly pality compared with those afforded the more presigious Committee of Vice-Chancellors and Principals. Annually the committee receives just 40 per cent of the committee receives just 3H per cent of the total polytechnic expenditure hunger.

The Arthur Suddahy, the current chairman of the CDP, and provost of City of London Polytechnic is sympathetic to the call for extra staff. He said: "Wo do as much as we can with the present level of full-time staff. But quite apart from the servicing aspect there is a lot of statistical work to be thus?"

be thrue."

The CDF is now recognized as a body with advice to give and has been called to give evidence to the Houghton committee, Layfield committee and various Guvarnment select committees. Hut it is now also playing an important role, as indicated by Dr. Suddaby, as a "link body" of the polytechnics. It is informing them, through detailed analyses and studies, about themselves and giving a national perspective to 30 varied institutions.

This will be the third year that the est This will be the third year that the estimate has prepared an in-depth study of the enrolments to polytechnics, taking into account numbers and subject ereas. The information which is released each April is sent to each of the polytechnics in England and Whies which have individually fed in their own figures to the committee earlier in the year.
This is also the second year of a pliot

This is also the second year of a pliot study being undertaken on applications. The CDP is committed to the belief that bafore argumants can be put for any radical changes in the public sector of advection relevant figures and information must be available.

Coosequently, with the debate about the rights and wrongs of the student selection process and the fotore possibility of introducing a central connell for admissions to polytechnics still in evidence it has beau investigating the lype of student currently applying to the colleges. Detalla of each applicant's age, education background, rece and home town are belog monitored and Mr Flowerday hopes that this will become s permanent feature of the committee's "backgroum" work.

room "work.

In recent years the CDP has made pronouncements on a range of issues including
pre-session advertising. In 1976 it recommended that polytechnics should oot edvertise in the national prass about places on
existing courses in the sommer scramble for
students. It was a move that most of the
rolleges welcomed and drastically reduced
publicity bills in a year when admissions
showed an 11 per cent growth.

Currently the CDP is putting forward a

showed an 11 per cent growth.

Currently tha CDP is putting forward a plan for each polytechnic to act as m information service for the other 29. Potential students will be told of courses at the polytechnic they approach and will also have the bonefit of information about programmes at counterpart institutions also where in the

The CDP has, as yet, not become unwieldy. The main committee and the CDP axecutive of aix, which includes the chairmen and the heeds of thrae supporting committees, meet separotely three timas a term. The attaiding committees, which cover academic affairs. staff and student affairs, and finance and pianning, meet twice termly.

pianning, meet twice termly.

In 1974, onder the chairmanship of Sir Alex Smith, the CDP descree e booklet entitled Many Arts, Many Skills, which outlined the polytechoics' policy and requirements for its fulfilment. It stated t "We strongly affirm our confidence in the polytechnic concept. We balleve that in charting its development, we are preparing higher education for the 1980s and beyond, into the mext century, and we make our claim for the cleer and firm auphort essential for its success."

cess".

Today Dr Soddaby Is awore of some dissection about the CDP. He seid: "There is a lot alon about the CDP. He said: "There is a lot of sulping about the strengths of the CDP but these criticisms ere lli-founded. On the whole are action.

Sir Alan Richmoud, then Lanchester Polytechnic's director and o ceaseless campalgoer for the newly dasignated colleges, was the

The gospel
of doom
according
to Paul
continued from preceding pegs
to paul
the drugger nerve provided pegs
to paul
the drugger nerve person
that drugger nerve person
the drugger nerve pegs
to paul
the drugger nerve pegs
to p

The Committee of Vice-Chancellors and Principals and the Committee of Directors of Polytechnics

The Committee of Directors of Polytechnic is not a body steeped in tradition. It is, inevitably, more youthful than many of the very young institutions it seeks to serva but from its small offices at the Polytechnic of Central London it has contributed, with some success, to the overall policy for the davoiou-ment of Britain's 30 polytechnics.

mant of Britain's 30 polytechnics.

Currently there is some debate about the CDP's affectiveness as a national mouthpiece for the polytechnics, an attitude that may have been ancouraged by fems over the increasingly closs ecrotiny of the public sector of higher education by the local suthorities. Yet there seems little doubt that without its existence no coordinated picture of polytechnic thinking would have been ture of polytechnic thinking would have been releyed to the decision-makers at central or local govatument lovol over the past six

years.

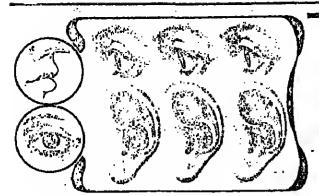
It was et a conference et Coomba Lodge
Further Education Staff College in late 1969
that the idoa of forming o committee of
polytocluric directors was first mooted. The
conference was attended by Mr Edward
Shart, than Secretacy of State for Education,
and the directors of the colloges either
designated or about to be designated as polyrechnics.

within weeks of that conference a working party of polytachnic directors, under the chairmanship of Mr Eric Wood, the first director of Lelcester Polytechnic, was actively investigating methods of setting up such a body. The working group prepared the ground for an effective committee of polytechnic directors and on April 30, 1970, the CDP atoged has first formal meeting at PCL.

CDP atoged its first formal meeting at PCL lasues raised on that date were as pertinent to the issues facing polytechnica then as that might be today. The directors agreed to aubuilt avidence to the Rossall Committee, which was then sitting to investigate recorrent education. They discussed the possibility of a meeting with the Council for National. Academia Awards and prepared themselves to inform the Department of Education and Science about the many unrelated requests for etailatical information that the new polytachnics were theo receiving.

more pressing problems.

It was mutually agreed oven at this atage that the CDP ahould not be a "union" of directors but rather an association with no mendotory power to enforce its decisions and resolutions on the polytechnics. The belief was that the cowly formed committee should under a contribution to the evolution of polytechnics. was that the cewly formed committee should make a contribution to the evolution of polytachnic policy, bring together a group of professional aducators who were able to offeredvice and expertise on education in the public sector and provided the means of developing common views and implementing corpor-



Personal way to read your textbook

by Roger Broadhurst

demanstrated some of the benefits of such a system ulthough it is quite clear that much will depend on the right type of portable micro-

interesting an increasing mutuber at educational applications harteries are the only ulternative will take advantage of uticrossic portable microfiche and thou take advantage of uticrossic properties and although some fiche and thou take advantage of uticrossic properties and although some reader suitable for personal use in the linear at the place of study will intensity.

A fairly superficial survey of interest to early distinct a significant intensity.

A fairly superficial survey of interest to uniqual some projection) and a relatively low level of screen luminance. Despite these limitations is represents an acceptable comprantice. Screen luminance, essential takes and performance.

Screen luminance in the disappointing level of screen luminance. Despite these limitations is represents an acceptable comprantice with its and performance.

Perhaps the only is maximum tags in variety in positions of only 17 times (desk projection) and a relatively low level of screen luminance. Despite these limitations is represents an acceptable comprantice with the and relatively low level of screen luminance. Despite these limitations is represent and performance.

Screen luminance in variety in positions of only 17 times (desk projection) and a relatively low level of screen luminance. Despite these limitations is represent and performance.

Screen luminance. Screen luminance. Screen luminance in acceptable comprantice with these and content in the projection of only 17 times (desk projection) and a relatively low level of screen luminance. Despite these limitations is represent and performance.

Screen luminance. Despite these of surface in a variety in positions of only 17 times (desk projection) and a relatively low level of screen luminance. Despite these limitations in these and relatively low level of screen luminance. Despite these limitations is represent and performance.

Screen luminance in these and relatively low level of screen luminance. Despite these limitations is represent and performance.

Screen luminan

A personal reader should not be little desk space and is easily particity. At the moment, of course, hatteries are the only ulternative property supply and although some readers have a 12V de import, and integral level of screen luminance. Despite formunce.

Smake flow past twa cylinders illustrates fluid niation.

The anthor is head at the deport-ment of bindding technology, Brunel University.

University.

Detoils and price of the programmes are available from the Secretary, London Audio Visual Centre, 11 Bedford Sanare, Landan WC1. The booklet glving practical details of the demonstrations, is available from the demonstrations of agranantics at Imperial College.

and in terms of compaciness portability is unmarched. Despite its ingenious design, however, the Viking is difficult to set up and use and hos a screen size which is fur too small fur most upplica-

the Viking is difficult in set up and use and hos a screen size which is fur no small fur most applications.

In the £100 ta £150 category the Microscat Leasure Mk IV at £125 is a purtable reader which has already prayed of value in education. It is perhaps a little tan large ta bo classified us a personal reader but nevertheless is fairly portable and, like the Fuji, prajects an image down on ta a screen in the plane screen luminance when viewed from yell. It has a suitsfactury level of screen luminance when viewed from It is generally accepted that there is considerable scape for the page of nitrofarms, and particularly microfiche, in higher education beyond their hasic library functions at space saving and for making and for making avoilable rare or aut-of-date material.

Among possible foure applications is the use of microfiche for the supply of personal copies of recommended reading material and possibly certain textbooks to subject to the supply of personal copies of subjects. Investigations have already and the right type of portable microst the right type of portable microst the right type of portable microst. In the right type of portable microst and the right of portable and the down in the a screen in the plane screen luminance when viewed from it the table; a canfiguration which the application position and has to The image is bigger and brighter of the screen image. Its only retthen the Fuji's olthangh this is disadyuntage as for as use in comaffset to some extent by the larger tion is cancerned is its high price desk areo the reader occupies. The and so, like the field & Howel Lensman's fiche curriage permiss version et £187, is perhaps more greater control over firhe moves suited in the executive than the

also at £65. This fulds away to approximately half the size of the Fuji and in terms of compactness really a oute sophisticated piece of continuent does not have a list of the size of the continuent does not have a list of the size of the continuent does not have a list of the size cquipment does not have a higher level at perfarmance.

In the \$150-1200 category there

extremely simulate ucting fiche car

Oxford OX1 4EY; Realtst Viking and WS1 Information from Microphes 1st. 333 Cowley Road, Haburd OX4 20f; Lensulun Mk IV from Microscot In Merit House, Eduivare Road, Collindo, Londoo NW9; Said Compact I for Flaloy Microfilm Cu Ltd., Flulay Bone P.O. Box 68, Aoriershoot, Burki BP 1881; Bell & Howell Ltd., 31-35 Woodhiors Bell & Howell Ltd., 31-35 Woodhiors Bell & Market Mildlagor TWS 86.

The author is in churge af evalue-

Pitfalls in the teaching role of television

What is the rale of television to sixth-form and undergraduate teaching over the next few years? Will it take, a central place in the learning system alongside the book and the lecture or will be limited to atherisating a general interest in a subject and illustrating principles learnt elsewhers? Two videouspes Ploids and Structure in Engineering Parts I and II.

The order of presentation is a

mode by the department of our man-iles, Imperial Collega and the Uni-versity of London Audio-Visuol Couro show some of the possibilities and une or two of the pictuits.

and une of two of the pittuis.

The programmes introduce some basic peluciples of fluid dynomice and structural mechanica and domonstrole how they help to axplain a number of phenoment encountered in the study of engineering. Most of the examples are taken from the field of aeronnuics and one envered in a more specialized way that the fittle suggests.

first programme mayes ropidly to the study of fluid motion. Methads of flow visualization and pressure measurement are shown tugether with examples of wind tunnol and full-scole tosting of pircraft and ground structures. The progremme culminates in a discussion of zero-clasticity and aircraft fluttar.

There ore film sequences showing and a dromutic example of wing flutter in a full-size gilder in flight. The effects of wing sweepback, alleron flutter and mass belinning demotstrations are elso discussed.

and tell-plone.

The order of presentation is a little juzzling. It would seem more logical to place the first programme, which links fluids and structures, at the end; and the outerful given the second programme would be more easily assimilated if it were divided into three saparate programmes. There ero obvious points at which the breaks could be made.

Television presantation is still a Television presantation is still a

new activity for many university lecturers but those involved in ing. Most of the examples are taken from the field of acronnutics and reasonable halance of informality and risour. However inconsistencies and risour. tativo descriptions, others hove intruduced mathematical formules.

The quality and style of produc-tion is variable. The first pro-gremme opens with a shot of air-craft taxling—so beloved by tele-visida plocumentary producers—and, in the first few minutes, there are pictures of Stonehenge and the now familiar sequence of the Tacomo

representations of the Tacomo luidge collapse.

Thore are some gand examples in the pragromoses of how televislan can illustrate scientific and englacering, and with goad tutarial suppart, they will certeinly pravide a stimulating introduction to some aspects of engineering. First-year, they will certeinly pravide a stimulating introduction to some aspects of engineering. First-year, engineering undergreductas will through a sequence of tests in a supplication of scientific principles to same of the more dramatic.

The second progrenme is longer and contains through a sequence of tests in a application of scientific principles and contains three distinct parts. The first section deals with the beautific parts of the first section deals with the beautific parts. Torsional sliffness, for axample, is demonstrated by its effect on vibre demonstrated by meny estimates depends on the cross-see from the occasionel out-of-shot teaching, motorist, and this raises from dide section is concerned to adaquate. The demonstration of the motorist, and the beginning of this games. Froude number, bow waves, gramme is spoilt by being filmed the hydraulic lump, in for ton small a opace—the models itself as one of several endo-visual disappearing behind the deske. 500 new additions to England's largest range

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How to survive when thrown back on your own resources

Far calleges and pulytechnics the he emplayed as teachars in further must impartant single can sequence education) studying at home, most the cuts in education spending or less an their area but with on will be to throw them buck on their sultation with college-based of the cuts in education. of the cuts in enfocution spending will be to thrink them buck on their num resaurces and to encourage the development of in-house in-service.

The edventage of this approach is that these themes will be presented in the contract of the c

The polytechnics have alrendy made considerable progress in defin-ing some of the impartant issues to be cansidered under the guidance of the Standing Conference on Educational Development Services in Puly-technics (SCEDSIP) and, through, the network of central and regional links, collaborative development and the exchange of meterials, informa-tion only adults, how here excluion and navice have been estab-

An example of this activity can be seen in the "Trypac", a reusentely self-contained teeching / learning package for use, for example, in in-duction and in-service training coursos. The system encourages the ex-change of materials used in staff development programmes, and enobles these materiols (which have been pinduced in me institution) is be circulated to interested individ-uals with enough information about procedure for the unit to be replica-ted in another palytechnic, sultably allored to meat the local situation, free of charge.

As a further example, the second yeer of a praposed part-time certifi-cote in education for FE tenchers, presently awaiting CNNA validation

menently available an agen access
on the library shelves on that other colleagues con branse through the monterials much in the same we that a considerable amount of earst dropping of Open University tade

Hording and Sayer (Universitä : Quarterly, Summer 1975) bud indiented that there needs to be a changa of percaption from the similar davelupment programme us I remedial activity to the programmer os o positive force in university education, and the same model is applicable to the further end higher education sector if we cere to take up tha challenge it offers.

Formal courses have not provide valuable in bringing about the kinding of attitude and behaviours! change it that the developing relationship.

that the developing relotoushis between the teacher and the learner in further and higher education would seem to require. courses are the general, lee long and too insensitive to the inner diote requirements and sensibilities of the individual teacher.

Trevor Habeshan

Video for absolute beginners

There has long hear a nacd fur e first-rate manual in the use of video user of, eay, a Philips VCR user tape, alined at the nonnechnical a powerful colvent cleaner, with a powerful colvent cleaner, and the powerful colvent cleaner, and the powerful colvent cleaner, and the powerful colvent cleaner. tepe almed at the montechnical beginner. Using Videotopic by J. F. Robinson and P. H. Beards (12.75) fells into just that categary.

Pollowing the formor set by the previous Focal Press Media manuals of having each page of text faced by a pega of illustrations, the back splant material—nor usurpling the ecolor, but freeling him to play a different; and perhaps mere important, role in the teaching learning system?

S. A. Urry

by a pega at illustrations, the back covers virtuelly every aspect of the dublact, that a beginter would nead to know in arder to make reasonable use af the medium of videotape recordings. And in explaining the techniques of videotope recording it does much to clear away the mystique and explain the jurys illque and explain the jurys illque and explain the jurys.

Bath authors are long-standing members of the television enginearing profession and the text is therefore largely foultless but unfarronotely not completely so.

The section an eleoning and degensing mokes mentian af solventive eleaners and explains thoir use, but does not make it clear that with some types of vidan tape machines there is a fuir degree of risk to the video head assembly

the Xylene mentioned dissolving the Aylene mentioned dissolving the adheoive used in mount the video hogdo on the rotoling head disc, with disastrous results.

Furthermora, the explanation of the e-called EIA farmer girent under the heading "Standards and

under the heeding "Standards and Compatibility" is on extreme oversimplification oud could less with the confession out could less with the confession out could less with the confession of the

rather etrenge, out to say imply sible, versione of the lelevision wuvefurm given in the illustration which were otherwise excellent although o little too profuse in some places.

Colin Gamman

The author is at the University Landon Audio Visual English

Films, cassettes and the Pru's complete history



THE TIMES HIGHER EDUCATION SUPPLEMENT 18.3.77

A new low voltage averliend projec-tar, the Portuscribe LV A4, is seen by international Tutor Machines of

Ashford, Middlesex, as the ultimate in OHP design. The model includes all the usual features of the Portascribe rouge, but has been designed for educational continental and industrial commissions.

dustrial organizations where Adpaper size is accepted as standard.
ITM claim that the projector has
high image definition, precise lamp
adjustment over the entire range of
projection distances, and noise
level is minimized by the inclusion
as ourshine for

Development and Land Tax" is a

new title in a series of cussettes on

aew title in a series of cussettes on taxation and accountancy topics produced by the Training Divisian af the Association of Certified Accountants, 22 Bedford Square, London WC1B 3HS (price E3.40 inclusive of VAT and pastage, or 14 if sem overseas aircrail). The speakers, who are both taxation specialists with Smy and Hayword & Co. review the scope and opera-

& Ca, review the scope and upera-tion of a tox which will have a con-siderable influence an the develop-

Simultaneaus viewing af the finest

details of a micrascape slide has

ment af land nurkets.

British year book 'first' in 63 parts

litatian like the Video Year Book has been produced in Britain. According to the publishers the aim was ta produce a comprehensive directary covering manufacturers and their products, companies providing praduction facilities and suppliers af systems and aquipment for sole ar hire.

The back is divided into 63 sections and those dealing with equipment, far exumple, camera muuns, leuses, test equipment consist of lists of manufacturers in alphabetical arder with the various items produced by them described in some detail. On the whole the infarmation provided on what equipment in each category is available and wha menufactures it, is comprehensive and wauld he just as useful to the professional in the videa field as to the acweamer. None of us can individually keep up with the whale market and inevhobly many af our own catalogues are aut of date.

Some of the sections have very useful intraductions to them notably In new product oreas ar where rapid changes in the technology are taking place. In particular the sections on discs: video, prajectars: TV. prampiers: TV, teletext and viewdate, videa tape recorders: broadcast und VTRs: industrial reel-to-reel all lava very useful background information in them.

The weakest sections were thase on distribution systems: RP and HP (where e number of well-known firms were mitted) and Modula.

firms were amitted) and Madola tors (egoin several firms conitted), but these are very minur criticisms when compared with the 40 or so excellent sections.

The sections on xervices offered include film recording: enlour, production companies thollowed by details of praduction facilities: hroadcast and production facilities: Industrial production facilities in the facilities of the facilities of the facilities in the facilities of the facilities in the facilities of the facilities dustrial), retailers, dealers and hirers of video equipment (pressured under geographical areas), software suppliers and librories, contractors (who supply systems) and video tape duplication facilities. Thay seemed fairly comprehensive sithough in the details of services offered by retailers there wave some obvious onissions.

There were some unexpected sec tions which were a pleasant dis-covery, such as the brief sommary of esmera tube typos, the listing of international TV standards, the summary of light measurement units, the list of basic facilities at the Televisian Broodensting Studios in the UK, and the section on television training (which unfortunately is by nearly section of the television training (which unfortunately is by nearly section).

is by no means complete).
Unexpected, (ea, but not torribly ralevant except in broadcasters (but an doubt hichided for completeness) were the sections on transmitters, in a mention of licensing prablems) and the eaction rother misloadingly entitled "links": wideo which I expected would deal with DAs and equalizers for cable systems but in fact largely declarated many processing the miscons of the process o fact largely dealt; with microwave links allinogis there were some in-teresting and unusual items in it, such as optical links and slow-scan

systems.
Looking et the publication as a whole I feel that Angus, Robertsoo and Video and Andio Visual Review should be engretulated on praducing such an excellent book. It must have been a tremendous task collecting the information and it was very satisfying to find so faw errors and amissions. I thoroughly recommend it to anyone salling, buying, or using video equipment or sarvices and at the price it is extremaly good value. Videa Year Book 1977, published by Dolphin Press, \$4.75,

Peter Whitaker

The outlier is director of the tele-vision, mile at the University of Birminglian.



Junes Hill directs "The Pro"

been mede possible by the intraduc-tion of a new clased-circuit televisian attachment far multipurpase nilcroscopes. The new Natianal nucroscopes. The new National Punasanic system comprising a mini clased-circut televisian comera, a mine-inch black-and-white televisian monitar, and an attochment ta link the camera to the uncrascopa is distributed in the United Kingdam axclusively by Teletronic Ltd, 9 Connaught Street, London W2 (wise of the contraction) (price of the system is £507, with extre camerus complete

microscope attachments, £275 each).
Up to 10 large syreen television monitors can be odded to the system, which her been designed for use in universities, research in the system. laborataries, haspital and medical schools and industrial training.

"The Pru", a lang-term recruitmeet film produced by Prodential facilitates programme of Assurance, traces the history of the in a variety of creas like company since its inception in 1848.

The 20-minute culaur film aims to and scientific research.

give a clear understanding of the career opportunities apen to young people of varying scholastic atminment. The range of careers affered by the company include (aport from administration and insurance) law, accumination of the insurance, two insurance, in columnal work, and data pracessing. In all cases the campuny provides on-the-job instruction, day release study facilities and the apparaunity to avoid days or would be apparaunity. to abond day or week-long training courses. (Further information from the stoff monager, The Prudential Assurance Company Lol, 142 Hul-lann Burs, London ECIN 2NH.)

Data General has added DOS (Dis

kette-based Disc Operating System) Basic Programming Lauguege capapility to its range of MicroNova micrapracessors-based computers (available fram Data General Cor-(available fram Data General Corporation for a fee of £712). Peaturing extensions to Dartmonth Basic, including aring airthmetic and matrix 1/0 operations, Basic under DOS is a subset of RDOS (Reul-Time Disc Operating System) Extended Basic, It is evailable in bath shalls and multipless versions and shigle and multi-user versions and facilitates programme development in a variety of creas including busi-ness, education, industrial control



To: Tandberg (UK) Limited, Famell House, 81 Kirkstell Road, Leeds LS3 1HR, Tel: 0632 36111. Delasse hand me datalis of Tandberg educational equipment DI would like your specialist Representative to contact me. (Tick where applicable

WELFER

Tuition fees: those in greatest need will suffer most

Ernest Rudd describes the results of a survey of self-supporting students at Essex University

How far do we know who is being hit by the massive rise in fees in higher education next year? We both undergraduate and pusigraduate—unless they are being supported by their home governments, the British Council, Commonwealth Schalorships, or some

grost British students, as they have grants. Indeed undergranduotes on the minimum grent will be margin-ally better off, since rather than receiving £50 and paying feed— antil recently generally about £70— when will margin processes. they will receive no grant but pay

The leeves the solf-supporting home students who will have to flod, out of their own pockets, £750 a year if graduates, or £500 if undergraduetes (plus atudents' union foes of soy £30 or £40).

Relotively dittle is known about those United Kingdom undergraduates who, olthough nearly everyons must by lew be ellowed o grout for a first degroo course, are nevertholess without one.

a first degroe course, are nevertholess without one.

To find our who they are, and how they support themselves, I fooked et every case of Essex University in this cotegory, telking to meanly helf, recolving letters from some, and looking at the information the romainder put ou their UCCA forms.

UCCA forms,
At Easex, of the undergraduotes paylog faces of the United Kingdom rate; one in 15 has not even the minimum grant, generally because he or she comes into one of the entegories specifically excluded from stalutory awards under the extraordinary complex end complicated regulations by which they are governed,

The sludents fail into three broad groups, within each of which there are many sub-groups. The most Nearly will the students from this group (e querter of the obvious group (e querter of the obvious group (e querter of the otations for which greats can be given (not oil of them actually had greats). In most ceses this earlier qualification was not a degree; the total, are more eurprising; by any commoneance definition they had below degree level;

Most of those without a degree,

Nearly will the students from this group were having considerable fior on a maintenance grant from an ic.a. while studying for a maintenance grant from an ic.a. while studying for a first degree,

In some cases they are coming eligible for a maintenance grant from an ic.a. while studying for a first degree,

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tuilcots, are women—snciely hes tended to put girls into teaching, nursing, and similar jubs where boys of equal ability would be more likely to go to university.

Some parents had gone beyand encouraging their daughtars into lower lovel courage when they were younger, and had put obstacles in the way of their reaching university.

A few had given up en earlier attempt at a degree on marriage, and this, too, would bur them from a ninndstory award. As ane of them said: "My husband didn't see why, when he was illiterate, 1 should have a degree."

have a degree."

The mental stereotype I have of most of this graup is uf a womon wim treiusd as a teocher, worked for some years at e job thet gave her little feeling of satisfaction, tried, at times, in a rather ill-planned way, in train for something more to her liking, and now, in her late 30s or early 40s, when her teenway or hildren was able to least often. themselves, is at last where she has nlwaye wonted to be—at a univer-sity experiencing the intellectual atimulation of a degree course.

sity courso is out of the question—it would moan etudying et hours when their familles ere et their most demanding. Also, mony af thom badly need an opportunity to breok out from the lutelligent housewifo's feeling of intellectual laoletion, and this the Opon University does not offer.

Also in this group ere n few, generally rather youngor, who are trying to goin not on cotry to e new cereer, but better promotion prospects in their oid one. They are from occupations—such as librarien.

Nearly wil the students from this group were heving considerable ficoncial problems and said that, if the present face were at the level fixed for next year they would have had to give up.



Students demanstrate against higher tuition fees in Landon last week,

up aversas, where their parents remain, and they have come to Britain snlely for their education.
liowever, none of these facts are

relevant to the question of whether they are home students for the purpasa either of a grant, or paying fess at the United Kingdom rate. For a grant, on undergroduate hes to be "infrmally resident" in the United Kingdom fur three years lumedletely before the first of September of the year in which he or the enters university; to pay fees of the United Kingdom rote, it is enough to be in Britein for the three years before the university course begins (or to meet certain other felily complex requirements).

other fellily complex requirements).

Meny of this group, while counting as United Kingdom students for feea, felled to get grants because they had arrived during the Soptember three years before their universalty courses alty courses began. Also there were a few others eligible for the United Kingdom rate of fees while ineligible for a grant, for exemple tha children of diplomatic representatives of foreign governments, or endonts from the Channol lalends.

tryling to goin not on cotry to enew career, but better promotion prospects in thoir old one. Thoy are from occupations—such es librorienship, sociol work and teaching—which are moving rapidly to an all-graduata lutake, and they see thoir promotion prospects heing shut off if they do not gain a dogree.

Finally this group lucludes some who have elready taken e dogree.
Those fow at Essex luove mainly dotto badly in their first degrees oud are trying again, sometimes, then yours later, in a different field.

Nearly will the students from the la.e.s. but had falled yet to obtain duem because someone hod told them thay were not eligible for a grant, bocause they were put off by the occupient of the fill in and misinterpreted some part of it as meaning they were not eligible for a grant, bocause they were put off by the fill in and misinterpreted some part of it as meaning they were not eligible for a grant, bocause shiev were put off by the fill in and misinterpreted some part of it as meaning they were not eligible for a grant, bocause shiev were put off by the fill in and misinterpreted some part of it as meaning they were not eligible for a grant, bocause shiev were put off by the fill in and misinterpreted some part of it as meaning they were not eligible for a grant, bocause shiev were put off by the fill in and misinterpreted some part of it as meaning they were not eligible for a grant, bocause shiev were put off by the fill in and misinterpreted some part of it as meaning they were not eligible for a grant, bocause shiev were not eligible for a grant, bocause shiev

phenomenon. Very substactisi numbers of studeots ara coming to Britelo from overseos, taking O and A lavels at schools end technical colleges, and then becoming eligibla for a maintenance grant from an i.e.a. while studying for a first degrae.

tachnical callage; hut they live on their savings, any muney their funiliss can send, and carnings frum occasional labs, until, nn entry to university, they get the l.e.a. gront, which at least reduces their

policy on overacoa students' fres aught to be, it is difficult to justify the present system ouder which the present system ouder which students from overseas who ure somehow able to support themselves in dis country for three years are then given a university education lurgely at the expense of the British

texpayer.

Nearly oll of the remoining students—a third of those covered by the survey—had follen foul of the regulations in other ways. Two negulations in particular are being used to deber a number of students from grants. One prescribes that an application for an owned has to be mode before the beginning of the course of study.

This hits those who leeve school

for a yeer or so before going to university—most schools enaure that their pupils fill in the right forms et the right time.

some are refused awords is that the student abould have been "ordinurily resident in the United Kingdom for the three years immediately preceding" his degree course. This cuts out British students if they have to the work oversees for have gone to work oversens for a period between school and univer-

Most potential students benefit Most potential students benefit areatly from a year or two outside the educational system before they come to university, and one would have thought that the experience of living and working oversees would be especially valuable; hut, for herd-pressed local authorities looking for ways of cutting their contents. ing for ways of cutting their expen-diture, such arguments are irrele-

The lucreasing reluctance of lè.a.s to make discretionary grants is also hitting those students who repect a year of their course. The le.a.s ere becoming much tougher obout such cescs, however legitimote

Lastly, there are a very substantial private incame, ar the psrents have substantial income, and the psrents have substantial income, and they believed they would a mathing, though in fact they would have received £50. Next year, the a minimum grant becames not come less fruquent.

There are three aspects of the whole situation that are extradi not oil the cuses I have described ere equally deserving of sympath; a substantial number of people six. by any standards of social lusic, ought to be supported, ar a ke substantially mided, through the degreo courses are being prefrom attempting such course, a completing them without great but

tionality of the rules on overse students. The third is that decisions that heve produced will state could have been made at a

But generally the problems i had described stem from the many m satisfactory features of the press grouts system—the raising of the has merely exacerbated problem that were already thers; and ere these are only a they part of the messisfactory state of the messisfactory

Given the complexity of it issues involved, there is only one answer — n thorough and it embracing review of the whole system of grants end fees ke undergraduates. And the terms of reference of ony committee working party, that is set us a do this will, if its recommendation are to have eny hope of acceptance have to include the resuicidas ha any proposols must be feasily within the current limitations & public expendituro,

The author is render in socialaged

Did Newton connect his maths and alchemy?

THE TIMES HIGHER EDUCATION SUPPLEMENT 18.3.77

Frances Yates discusses the impact of Hermetic philosophy on the work of Isaac Newton, who died 250 years ago next week

The work which has been done in necant years un Isoac Newton's un-published manuscripts has not affacted his stuture as the brilliant mathematical thinker of the Princi-pio and the Opticks. But it has altered the context in which we naw see Newton, for it appears from naw see newing for it appears from the annublished papers that this major figure in the Scientific Revo-luion of the seventeenth century was still deeply involved in ideas ilch we have supposed typical ut ilia Rougissauce.

In their revolutionary article un "in Newton and the Pines of Pan" published in the Nores and Onerics punished in the wores did Cheries of the Royal Society in 1966. J. E. McGuire and P. M. Ruttansl quoted from the impublished numu-scripts words which showed that scripts words which showed that Newton believed that in discovering the law of gravity and the world-system associated with it, he wordiscovering an unclent truth, known to Pythagares, and hidden in the myth of Apollo with his seven-stringed lyre.

With this profoundly Renaissance with this protoning Relatisance fold in ancient truth hidden in myth wos asaociated Newton's trust in "Hermes Trismegistus" as an ancient Egyptinn sage; Newton ignored isauc Casanbon's loto doting of the Hermeticu.

In my own book, Giardano Brinin and the Hermetic Tradition (London, 1964), I suggested that Bruno's Hermatic universe turnod into "sunething like the nicchanical universe of isaoc Newton". It now appears that, after study of the napublished papers, scholars are inclining to the view that Newton's mechanics are effected by Hermeticism, so that Newton, too, is in a sensa a Hermetic philosopher.

The most startling revelation from the unpublished papers is the fact that Newton wos not merely justrested in alchemy (as has always been known), but that he devoted more done and chergy to this Hermetic pursuit then he did to his mathematical studies. Ha collected hnoks on olchemy, ondeavoured to unravel the scientific pracesses which he believed to be hidden in alchemical myth, and laboured increasantly to test by experiment with furnoces in a laboratory the recipes which he believed that he had deciphered from the mysterious longuage of the alchemists.

alchemists.

This was in an senso o vulgur pursuit of gold-making, but a religious scientist's endouvour to uncover the divine plan in matter. Newtou's alchomical studies were complementary to his mothomatical studies. They were rigumusly controlled by experiment and exect calculation in a method as earefully sciendfic as that used in the works for which he is femous, as has been for which he is femous, as has been emphasized in B. J. T. Dobbs's recent study, The Poundations of Newton's Alchemy (Cambridge,

Newton's Alchemy (Cambridge, 1975).

Other lines of investigation were pursued by this extraordinery than with equal passium. He was, for example, determined to unravel the exuer plum and proportions of the Temple of Solomon. This was another Renoissence interest; the plan of the tomple, laid thus by plan of the tomple, laid duwn by God himself, was believed to reflect the divine plan of the uni-

For Renalssance scholars, the meory of classical erchitecture was ballovell to derive from the Temple and, like it, to reflect world and human proportions. One would expect to find Newton compalling architectorol theory and tamplomeasurement to yield scientific results os exact and important lu

nathematical and alchemical studies. (Newton's plan of the Temple of Solomon has been published by F. Manuel in his honk lang Newton Historian (Cambridge, 1963).

Isour Newton Historian (Combridge, 1963). It seems not measurements highly. It seems not also between the chronology of world history and in prophecy. He worked out chronological systems bosed out the prophetic hooks of the Old Testament, hoping that here also, by more rigidly accurate organization of such materiols, he would be oble to gain a hetter grass both of past history and of prophetic insight into the future. In these apocalyptic calculations, Newton's Protestant his comes out powerfully.

It seems not mecusmoulle to ask whether purt of Newton's interest singlit bave been because he snught in them possible connections between alchemical and mathematical thought—his own dominant interests—which Dee would seem to have found significant ways of combining. At any rare, he must have read about Dee in the Thentoun Chemicum, and heard of his mathematics through the eichemital volume in which he uttached such importance. Among those prohubly connected Where in the history of thunght, religion, or science ran me find n cluster of ideas at all comparable to the amazing content of the initial

An engraving from Maler's Atolonta Figens (1618), in which a philasa-

pher attacks an egg (symbolizing the universe), with perapective (symbolizing orrhitecture and its aliled mathematical subjects), and fire

Anung the largo number of ol-chonical writers studied by Now-tun, one of his fuvuurites was Michael Majer, whose works were

copied by him agoin end again. Maler belonged to the early seven-

with the untecedents of the German sierucian movemant was Simon question cannot be answered as yet in most elaborate occount with camplete rmflience, there are certain fairly unvious clues which demand investigation.

Interm (temple measurement) in most elaborate occount measurements of the Temple Solumon, combined with theorie world-history, significant history measurements of the Temple of Solumon, combined with theories a world-history, significant, historical detes, and apocalyntic prophecy, all in a strongly anti-papal vein.

Studion's outpuurings bolong to e class of literature which Newton knew, and used in his own unpublished manuscripts on such themes. I have suggested, in The Rosic ucidat I have suggested, in The Rosicrucian Enfightenment (London 1972), that Studion's prophecy duat the year 1620 would see the downfull of Antichrist (the Popacy) may have encouraged Frederick of the Paladnato in his mad enterprise egginst the Hapsburg powors. This suggestion cannot, of course, he proved I but a reading of Studion is cartainly evocative of the annosphers of those times.

Philowing Maior as a clue hos led into u cluster of ideas relating to alchemy, mothematics, prophecy on anocalypse almilar to those which preoccupied Nowton. They belong to the period of the prilite-religious movement which falled so disastrously in 1620, a failure which cluster of the cause of overwhelmed the cause Pratestantism in Europe,

strongly approved. Thase who be-lleved intensely in Pratestunt principles viewed with passion the col-lapse of Protectanilsm in Europe; of this passion may have gnns Newton's intense search for in mathematics, althemy, and

If the movements outlined here seem nossible as the historical pre-porution for Newton, the problem still remains of explaining the change from a later Rengissance

teenth-century German Roalcrucian movument; he nibde a purficular such of John Dec—into the study of alchemical thought hidden in myth, and his own elcheulcal in myth, and his own elcheulcal

The same of the same of the same

Peter Sheldrake argues that tertiary education units in Australia need to develop a firm basis in research

A misconceived emphasis on training teachers

In a recent article (THES, lopment and learning in the Nuvember 26, 1976), I critivized broadest sense.

Some of my colleagnes in tertiary education units for the limited quantity and quality of their output. Little by way of limited to methodological advance has come from the many units in Anstralia and elsewhere, and one particular usoper of this problem is usegested. uspert of this problem, I suggested, relates to the episteanological mature

relates to the epistemological mature of colocation itself.

For colocation is an applied distipline (or perhaps "subject" would be a better worth, and lacks an intellectually coherent care, e set of concepts and thearts that are its own; rother it draws on the theories and methodulation of the methodulation of the methodulation.

In the east of terriary education, parilcularly when it focuses an lea-char training end stuff development, the source of legitimation tends to be the normative views of educa-lonists themselves, as much up the knowledge ileriyed from other dis-

Of course, the same comments about the lack of evidence of a productive and fertile budy of ongoing research could be made about education itself—and aften is. With some fruth, the further observation is made that education is duminated by teacher training, and particularly the tridning of primary and secondary teachers.

The sume three "explanations" I uffered in relation in the paverty of "pure" rescurt his tertiary edueating apply equally to the muro general subject.

general subject.

But calucation is not alone among reengaized ocudemic subjects in having an applied enucern; the some is true of ougineering, accompancy, medicine or luw, all of which ore respected disciplines in the university world. However, a brief review of these other subjects suggests that the way in which the "opplied" interacts with the "pure" varies considerably; and there may be a lesson for education to learn.

in engioecting and accountoncy, the subject taught by the university is that which is seen as the basis of the vacation, the underlying set of theories and frameworks: in engineering this includes subjects like applied mathemetics, materiols science scalery structures and so on. enco, geology, structurea, end so on; in accountuacy, economirs, business methoda, corporate low, and so on. The procedol side of troining is

lsfi to postgraduate experionco— with a combination of further qualiwith a combination or rurner qualifying exeminations and probationary
service. Medical training brings
some of this pracedal training
within the embit of the undergraduete course, and attempts to demonstrate the relevance of the previously taught theory, and in law
there is a slow unrement in the

Theory and practice

In education the strotegy is rather different: we allow students to study any subjects inhinity, and then teach thom; courses that are overwhelined the cause of Pratestantism in Europe.

Ideas from chose times would have reached Newton through the Protestant tradition, of which he so strongly approved. Thase who be the control of the

way that anatomy, physiology are blochemistry are, despite part of medicine overlaps.

Nor, given the atrong teacher training bias of the subject, era thoy sufficiently devaloned to represent specialized areas within established the company of the subject. disciplines, as muteriels science cun be in departments of engineering, or economics in eccountmicy. Indeed when we turn to luck of ressarch interests we find that the orientation s curiously porusitic, the major em-

generally necepted that universites are places for research and post-graduate work, and, in Australia, the colleges of advanced education (CAEs) the main locations for vacational training.

In education this general view

was given a shorper edge by the recent Australian Universities Connission Report for the 1977-90 triennium, which commented that: ensure that the intakes of students

to pre-service course are not increased; indeed, the Commission has requested universities in effect some reduction where passible. The Commission ties indicated that lo its view the universities simuld begin to consciously and applicable and applicable. cuncestrate more on edvenced and nongraduate work in the field of cducation . . " (Para 3.9). Such a view is unambigunus The

general implicutions of the binary ayatem have yet to be worked through in a systematic fushlim, but acceptance of some kind of funcstrictly vocational should be moved out of the oniversities, and taught only in the CAEs.

In education, the choice is clear; in other subjects—such as postgraduate, or vocational, training in medicina or law-thu strategy is less clear cut, and at present the univer-sities seem to be competing with the as well as the non-vorctional.

This is a mistake; indeed, a famila-mental error which could threaten the very position that universities have so far fought to mointain.

Need for research

Of course, rhe definition of "vocu-tional" needs some clarification, and tional "needs some clarification, and a case con be made for viowing the most brusdly hased courses in a liberal arts education as vocational, as Treyvand and McLaren do in their case for the CAEs, Isqual hat Chengar (Melbourno University Press, 1976).

However, I suggest the organisment waker more corse the organisment

makes more sonse the other way round; namely, that, intiversities should not hove their concerns and

should not hove their concerns and interests circumscribed by the narrow demands of vocational preparation and manbower requirements. Certainly, the present preoccupation of the university deportments of education with the training of teachers seems quita misconceived, and eppears to have contributed to the limited scope and significance of aducational research to date.

Tertlary education units are at the entronce to the seme straits, and would do well to evoid some of the racks chead: thuy, too, need to abundon their reliance on staff training and the odylsory role, and must begin to develop o atrong

must begin to develop o atron research framework to underpi

research flamework to underpix thair other activities.

In fact, much of whot is currently being done by tertlary units should be pert und parcel of avery ecademic's work; the evoluation of teaching programmes, the ossessment of teaching effectiveness, rolationships with students, and so on. All these should be a continuing professional concero, and the terprofessional concero, and tho ternnd advise where necessary—not toke over thase tasks. Indead, the sltuation of tertlary

edocation inits end aducation are so similar that the two should work together. The role and work of the tertiary units is now anficiently well known, and the staff accepted, that initial enuterus about the "autonomy" of units an longer

earry the seme weight.
Good staff will work will, and confidently, whether they are in an

Are British and American PhDs equivalent? A Chemical Society survey shows most US industrialists think they are, but some have reservations Americans give 9 out of 10 to the British postgraduate

In e recent report on science and technology in British universities, and Housa of Commons Salect Comshe Housa of Commons Salect Committee on Science and Technology expressed its concern of "quite widely voiced criticism" in the United Stetes of the character of postgraduate training in science ond fechnology in the United Kingdom.

The select committee wrote:

The select com

and an explanation of the relatively low status of PhDa American professors of chemistry in British industry.

The Chemical Society's standing advisory committee on relationships between higher education and industry is standing with great interest the select committee's interest the select committee's and oral evidence to its steleca subcommittee. It was very substituted by the select committee's allegations about American ylews of British PhDs, and resolved to dater mite whether the statement is true for chemistry PhDs.

As a result, e latter was written to for chemistry PhDs.

A markan channels: whose names and committee for chemistry PhDs.

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A markan channels of phDs and resolved to dater of chemistry.

But the distinct of the above questions about postions asked whether British PhDs and in dustrillation to the above questions about postions asked whether British PhDs and in dustrillations asked whe

We asked two simple questions: Is a fresh British chemistry PhD likely to be as offeedya as his Anteri-

British PhDs, and resolved to dater mine whether the statement la true for chemietry PhDs.

As a result, a latter was written fortunate to receive assistance from to 40 acutor; industrialists in Icading American Chemical Society, American companies, whose names that been angested by colleagues well known to us in corresponding British affiliete companies.

Of chemistry.

It addition to the individuals with the unsollcited comments respondent to which the unsollcited comments respondent with the unsollcited comments respondent with the unsollcited comments respondent in the selection to the individuals occurred with the unsollcited comments respondent in the selection to receive assistance from the date of industrial contacts of comments respondent in the selection to receive assistance from the date of industrial contacts of comments respondent in the selection to receive assistance from the date of industrial contacts of collection to the individuals with the unsollcited comments respondent in the selection and comments respondent in the selection to receive assistance from the date of industrial contacts of collection to receive assistance from the date of industrial contacts of the individuals occurred with the unsollcited comments respondent in the selection to receive assistance from the date of the unsollcited comments respondent in the date of the unsollcited comments respondent in the selection to receive assistance from the date of the unsollcited comments respondent in the date of the unsollcited comments and collection to receive assistance from the date of the unsollcited comments respondent in the date of the date of the unsollcited comments and comments respondent in the date of the date of the date of the date of the unsollcited comments respondent in the date of the date of



geve us an unquelified assurance of ebsolute comperability of the British and American. The four problem's solution. academics assured us of comparo-bility in the research areo, but only two of them geve on unquali-fied ossureoce on British PhDs' performance autelde research.

In detail, 10 industriellets said that British chemiatry PhDs seem to be less motivated to enterindustrial employment then their American counterparts. Two respondents cleimed that those who do enter industry may not be the most able, and five that they appeared to view industrial rosearch es underspectable.

The research area, two is spondents felt thing Brishs chemistry products in the research area, two is spondents felt thing Brishs chemistry in the research area, two is spondents felt thing Brishs chemistry in the research area, two is spondents felt thing Brishs chemistry in the research area, two is spondents felt thing Brishs chemistry in the research area, two is spondents felt thing Brishs chemistry in the research area, two is spondents felt thing Brishs chemistry in the research area, two is spondents felt thing Brishs chemistry in the research area, two is spondents felt thing Brishs chemistry in the research area, two is spondents felt thing Brishs chemistry in the research area, two is spondents felt thing Brishs chemistry in the research area, two is spondents felt thing Brishs chemistry in the research area area area area area area area.

r "second best" and ecademically unrespectable.

Eight respondents attributed this to en over-preoecupation in ocademo with soholership for its own aske and three to emplayers failure to stretch their PhDs and to give duem. A number of respondouls cleimed that the American character than the American character. good cereer structures.

A number of respondouts cleimed that the American chemistry PhD greduate seems better at taking a broad view of industrial problems, and in having regard to his employer's basic aims, while the Brit-

While there was no overwhelm should be a feature of all Bridge chemistry PhD programmes, sult a number of industrialists as and academics, none were highly critical. Where critical commants were made, a particular noint was remforced at most by 10 of the 43 respondents, but more typically by three or four.

In detail 10 industrial industrial is a number of industrialists course work as giving the American Five respondent an edvantate porticularly useful in facilities teamwork; and five in oriential situations.

Mulcolm Robinson

The author is education officer The Chumistry Society.

for the new academic year in Australia

staff and students

William Purvis reports from Sydney on the outlook

Job concern among both



The Times Highar Education Supplement (London) Tal.: (202) 630 6765

Army centre to house gene experiments

National Institutes of Health at Fort Detrick, the army centre for hiolog-

Existing Isboratories at the Maryland centre will be modified und upgroded at a cost of \$3m to deal with the highest level of government-funded DNA research ollowed upder the instituted widelings. uoder the institutes' guidelines—the level that involves homous and mon-

Work will probably focus on the cloning of human and mummalian gence, according to Dr William Garlond, director of the NIH Office of Recombinant DNA Activities. He sald a national focility was needed for what ore known as P-1 (the most enntuined) experiments becunso the sofeguards required were probably too costly for any univer-P-3 laboratories, the next lavel down,

The Fort Detrick centre will be used for basic research, testing the guidelines to see that they are strict ethough and training researchers end laboratory essistants in the techniques needed to conduct such potentially dangerous experiments. The laboratory will be ready in the summer, and will be Americo's first, at P-4 level. There have been no commitments to build my others yet, though Hoffman-La Roche, the drugs firm, is soid to be thinking The laboratory will be ready in the summer, and will be America's first, at PA level. There have been no commitments to build my others yet, though Hoffman-La Roche, thoug

A notional centre for genetic experi-ments using the recombinant DNA technique is to be established by the uril 1969 when growing controversy prompted President Nixon to stop all offensive germ worfare

> Mesawhile, the Nutional Academy Meanyhile, the Nullonal Academy of Sciences has coocluded its three-day forms on recombinant DNA research with the difference of opinion among the participants just as sharp as when it began (THES, March 11).
>
> The only point that most speakers found its parameter than the seed for

found in commun was the need for some kind of legislation in ensure that the guidelines were universally enforced in Industry as well as in government-funded research labora-

Autong the Issues roised was the use of genetic engineering us "gene therapy" to replace defective hered-tary instructions for haemoglubin for bably 100 costly for ony university. Horvard and the Massuchusetts institute of Technology are building P-3 laboratories, the next lavel down.

The Fort Detrick centre will be sickle cell onaemia, for example, used for basic research, testing the guidelines forces that they are strict.

Blacks found more likely to study than peer group whites

Black school leavers are more likely to go on to nost-secondary education than whites from similar economic stotus were nearly three times os likely to gu to post-occudary education as whites in the same group.

These comparisons ore possible because for the first time the survey includes statistics on family income and race of public and private school and collage students, o profile of the ethnic composition and lenguage wages. More than 85 ner cent of the most capable black high school graduates from middle and upper income groups are now college students, two years after leaving school. This compares with less then 80 ner cent of the brightest white students from similar backgrounds.

The study, The Condition of Education, is the ennuel report issued by the Department of Health, Education and Welfare's National Centre for Educational Statistics. It found that black school leavers with the school leavers from househulds where

California owes \$5.0m

The University of Californio hes been told to repay the Government S.S. because it cannot properly eccount far how the money was spent. The university is disputing spent, the university is disputing the Association of American University is to have a full-time President of Colorate and Welfere.

The federal auditors say the university is expendent of the first time. He will be D. Thomas Bertlett, Fresident of Colorate and Welfere aummor saleries, vacadom pay, or constitute of the disputing time of the construction of S.S. in the construction of American University and the university prevents to have a construction of American University and the suddom transfer of the state of the first time. He will be D. Thomas Bertlett, Fresident of Colorate and the suddom transfer of the state of the first time. He will be the May 2 to July 22, and will be the limit the summer term will he cancelled. The strike, like that at lawal, was mainly over the say of the tracted to the state of the first time. He will be the May 2 to July 22, and then the will be the May 2 to July 22, and then the will be D. Thom the canada of the Mills and the summer term will he auditorial the summer term will he the law May 2 to July 22, and then the will be the May 2 to July 22, and then the will be the May 2 to July 22, and then the will be the May 2 to July 22 to July 22, and then the summer te

More openings for graduates There appear to be more julis for tember to June. Data are submit-this year's college graduates than for several years, according to the throughout America, and the survey

The council, in its mid-year salary survey, found that at the Buchelor's degree level 49 year cent more job in tub officer. Thought in tub officer Thought in tub officer. degree level 49 per cent more job inflors were reported than this time last year. At the Master's level, the volume was up 74 per rent. At the Bactural level it was 7.1 per cent the figure rise for sciences and 45 per cent rise for according. The biggest increase was in humanities and social sections, with a 2nd of sections, with a 2nd of sections.

higher.

For women, the number of salary offers rose 68 per cent over last Murch, and last year had already shown a gain of 27 per cent over March 1975. The volume for men went up 45 per cent. A year ago men had experienced a 20 per cent decrease.

The women is a salary per rent gain, but this was had out a relatively small robunts and fullowed a substantial drop has year.

Engineering continued to attract the most interest from employers.

About half (47 per cent) of all the offers required wave for continued.

Despite these gains the promotion of women's offers to the total for all IIAs remained only 18 per cent. 1000l, with the remaining 28 per This is, however, still an improve-cont being dicided among 21 other

60 per cent more uffers. Wumen's for and in educational institutions share of total volume was 16 per also went up 50 per cent. Governcent. Two years ago, women accounting in near agencies made only slightly ted for only 10 per cent of the more afters than a year ago. Muster's offers.

This is the seventeenth annual survey by the council, it is hased on job offers, not neceptouces, made to college students in selected fields and graduate programmes during offer of \$1,508 a month—a gain of the recruiting period. Separations 8 per cent since last July.

the top average of the Med level, titler llackelors engage, averages ranged from \$1331 Callege Placement Controll. Winner's covers jobs to most major fields prosperts seem particularly bright, except teaching.

The council, it its mid-year salary All undergraduate disciplines

ally experienced gains of 2 to 5, cent with average dollar of, canging from \$851 for the his cal sciences to \$1,085 for coape. ities and sucial sciences with a 70 Despite increases in volume is humanizies and social sciences for overopes dropped slightly is last July's figures. The \$162 has

ance for humanities was only the half the petroleum engineig average. Modest gains of 3 to per cent were reported in the ba offers reported were for engineering positions. Accounting and and ness disciplines with areraganging from \$865 for marketing st itting contributed 25 per cent of the listribution to \$1,064 for noz At the Muster's level, the Me

ment on the ratio of 11 per cent in 1975.

At the Master's level, the rolume for women increased 30 per cent over last year, while men received March, Differs in the industrial secdisciplines and the science hat colume ancre than doubled bete dullar averages remained at July's levels. Chemical engineers with \$1,487 a month, comment the top Master's dollar average. logy and related geological sin-followed at \$1,418 dollars also In terms of dollar merages, pergain of 8 per cent, largen to ruleum engineering, a small but growing field of study, was far

master's level. nhead of all other curricula at the Buchelon's level, with an average offer of \$1,508 a month—a gain of At the Ductoral level, there engineering had the highest of average at \$1,867, following a pro-

For years the cullege sulfa-

from low academic standards it lack of money. After the 1954 &

sinn toulawing tackal segregit:

a full part of the state mixels

applicants remains law, of his policions remains law, of his policions to the control of his law of his policions and mathematics, of his day had not cent a single had designed.

her culae four years of high site!

for fast such students that ichnicaliable role to play. Special play animes inquive their basic distance in and a har of money is spen cheinging students up to the students.

The university acques that it?



Professor Jensen: " muddled deci-

Jensen choice criticized

Professor Arthur Jenson, the Rerkeley psychologist whose tuning versial research little the link lietween race und intelligence hus been hitterly attacked, has been elected a Pellow of the American Association for the Advancement of Science in its annual meeting in Densor.

His election was strongly criticized by a group of 40 scientists at the meeting. Margaret Mend, the fantous unthropologist who was lust year's chairman of the board, said she would fight the decision, which she called "muddled".

Professor Jensen was among 178 scientists elected this year. The essociation's board voted 39 to five in his favour, with 10 abstentions. Altogether there are about 16,000 Pellows of the association.

Education lobbies

Course for Educational Statistics. It found that black school lasvers with a work and black school lasvers with a large comes from househulds where the statistics are statistics and black school lasvers with a large comes from househulds where the statistics are statistics and black school lasvers with a large comes from househulds where the statistics are statistics and black school lasvers with a large comes from househulds where the statistics are statistics and black school lasvers with a large comes from househulds where the statistics are statistics. It is not the statistics are statistics and black school lasvers which large comes from househulds where the statistics are statistics and the statistics are statistics. It is not the statistics are statistics and the statistics are statistics and the statistics are statistics and the statistics are statistics are statistics and the statistics are statistics and the statistics are statistics are statistics and the statistics are statistics and the statistics are statistics are statistics and the statistics are statistics and the statistics are statistics are statistics and the statistics are statistics are statistics and the statistics are statistics

Another black college faces threat of shutdown

A build is going on in Maryland Idacks were not admitted to y over a university that state officials main university compus new Between to close because it has best so many students that it is no longer toral codlege for blacks. remoniteally viable. The struggle reamonded by viame, the struggle has been complicated by an impor-funt consideration; the university is one of the country's 107 historic-ully black colleges, many of which are only threatened.

The university—the University of rollege. In 1970 it was proceeded.

Mocyland Eastern Share—is, as its name implies, an the less developed ensiern penhisula of Maryland that encloses the Chesapuake har Situality in the state unitary new facilities and buildings we find up, and good reachers had encloses the Chesapuake har Situality in the academic standard continues to the continue for the state unitary. ated in Princess Anny, an area of high intemplicyment, it custives inc high intentidegment, it custives incontant jobs for all horal people. The problem is, as a revent cepart pointed on, that the university's envaluant is shrinking fast. In the past two years I has faller from 456 to 759. Casts per student have now risen in \$lighelt—the lighest of art state college or university in Maryland (except the inedical schools), Meanwhile, Salishury State College nearly, predominantly telling

bleanwhite, Sausana, predominantly cellter loss increased is student numbers rapidly in the past two years, and costs per student are less than half those of the university's.

The report says the state's Dicard of Higher Education should cluse the university and relocate his teachers and similar tentain. Some for their student should rentain. Some for their student set in the staff are now while a 197.1 a third of the student set in the student set.

The university began in 1886 as also. But white curolined is not high school for blacks. When the down to 23 per true, while at \$100 km of the curolined is not not per true, while at \$100 km of the curolined is not not per true, while at \$100 km of the curolined is not not per true, while at \$100 km of the curolined is not not per true, while at \$100 km of the curolined is not not per true.

comes to end

Record strike Shake-up for

The strike at the University of Que- Mr Joseph Californ, Secretal hee at Montreal has limitly ended i Health, Education and Welfart, is ofter 133 days. It was the burest i summinced a rengenization of department which, he estimates !

Economic factors dominated the vacancies ceview committee which prospects for stail and students of has the task of deciding which, if Australia's 19 universities as they age, vacancies must be filled and returned to campuses for the start which can be deferred, perhaps in of the new academic year this definitely.

percentage under normal con-ditions: but in recent months, with

3 per cent, this putting even greater strain on the university's financial

The owst established universities expect to unintain their staff numbers at 1976 levels though some

such as Monash tenort that numbers may be down "otarginally".
On a wider front, the Austrolian

nonth. During the summer vacation national uncomplayment reached dearly 6 per cent and inflation continuous at a monad rate of along the monad rate of along through natural wastage. However, the turniver of staff has sloved apprecially in the past year. Sydney University had more than 200 vacancies and levies which this year twill overage about AS100. Normally most students would be oble to get part-time jobs during term to make ends uncel. But this year there leave 6 or 7 per cent of total sinff numbers vicant. This is the nverage

cesaurces.

make ends (neet. But this year there are 400,000 jubics compelling for any mark available.

Allow 70 per cent of students also get a government living ullowance of atom A\$42 a week; but this is well helow the official "toverty level" of A\$55 u week.

level " of ASSS u week.

These problems, ingrever, the not appear as ver to have affected the demand for university places. Australia's largest, the University of New South Wales, had 4,200 first-year vaconcies this year and 6,000 people listed the university as their first chaice—an increase of nearly 1,000 on the 1976 figure. Other universities report a similar trend.

But what is obvious is a shift in student preferences, Some fuculties, such as architecture and engin-

Swingeing cuts planned in teacher trainee places

future teachers. The proposels concern, in particular, the two universities of Munich.

The Technical University of Munich, according to the Minister's plan results.

The Technical University of Munich, according to the Minister's plan, would cease to trein any secondary school teachers in natural science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be science students from 1,200 to 400. The Spanish department would be seed whether it is legally possible to reduce the students from 1,200 to 400. The Spanish department would be seed whether it is legally possible

Bovariu is the latest Land of the Federal Republic whose Minister of Education has proposed drestic cuts in the number of places for future teachers. The proposeds con-

A major academic freedom dispute has arisen in the Republic of Ireland John Horgan reports

Church row over 'dismissals'

Malachy tr'Rourke, a lecturer in Fronch, and Father P. J. McGrath, professor of logic. Mr tr'Rourke was a priest antil he was released from his yows last year.

Both men hold reaching posts in the college, which is a recognized college of the National University of Ireland, Their solaries are thereof freland. Their soluties are there-fure noid by the state, although the bishops, in their cupacity os gover-nors of the institution (which to-cludes freland's orajor national seminary) have the right to hire and fire staff. fewer staff leaving, the percentage of vacancies has shrunk to under These two cases are thought to

be the latest in a line of similar occurrences in which lecturers or professors - usually on the seminary side which is not directly financed Union of Students will ugoin seek to clublenge the conservative 'nti-lodes of the federal government, concentrating on bread and lutter issues valuer than questions of

Patrick Knight on a growing

in student preferences, Some fuculties, such as architecture and engineering, ore feeling the drought. Registrars report a continuing drift away from certain courses because of what one called "a reflection of student concern about future employment opportunities."

Newspaper reports of qualified lawyers driving taxi-cobs, however, have not as yet offected enrolment in law schunks, possibly becouse many students are toking low degrees as half of a two-degree course. The basic issue is that of occess to education. If the government fails to provide adequate assistance for students and there are not port-time jobs avoitable, the children of wealthy families have on even

principle.
The one-day "suppose" colled by the AUS Inst October did out get 100 per cent support from support

grees as half of a two-degree churse, linked with an economics, commerce or orts degree as preparation for careers in an area other than practising sufficient are barristers.

Overall, most of the alder established universities will have the same enrolment totals as lost year, though some, like Melbourne University, may have a slight increose in just-graduate students.

Of wealthy families have on even greater advantage than they already enjoy, argues the union.

Whether students will respond to the fact that AUS millious remains to he seem. Subsequent at several university makes enwards of us all? and the langer-term desire for o degree out a job will overcome short-term concerns.

expenditure on inferrollies will increase in 1977 by only 2 per cent. However, the new universities will take a disproportionate share of this smell furceose, creeting serious finencial problems for some of the others.

Mocquarie University, for example, will have a total student body of more than 10,000 and is no lunger regarded as a new university. Maintaining last year's standards would have meant a deficit of obout \$250,000.

Macquarie now has 16 academic and 25 other vecaut positions. Like mony uther universities it has a more places for adults.

Brazilian research centre Amazonian

incentives careers in ma area other than practising subcitors or barristers.

Overall, most of the older established universities will have the same enrolment totals as lost year, rhought some, like Melbourne University, may have a slight increose in past-graduate students.

The new developing universities such as Mardoch in westorn Australia, Griffiths in Quoensland and Deokin in Victoria will bave increased enrolments but their combined effect un the antionol total is minimal.

Those now universities ore the only ones that can laok forward to any significant grawth in 1977, in terms of student numbers, new buildings and stoff recruitment.

The government has decreed that expenditure on indiversities will increase in 1977 by only 2 per cent. However, the assaw universities will increase in 1977 by only 2 per cent. The markets of the students of the providents of the providents. The University of NSW actually in the Australia of the requirements.

The universities are definite area of expansion leading the large of exp The Amazonion Studies Institute at Manous

INPA is divided inth divisions: agronomic oclences, blo-logical aciences, niedical aciences and special projects. It does not touch areas, such as minerals, which are the responsibility of

separate government agencies. Foreigners are being recruited because able foreign research steff are cheaper and easier, to get than Brazillous at the momant. A Europeen or North American can be persuaded to work in Amazonia for a few years for fer less reword than bis Brazillan counterpart. There is a severe shortege of qualified Brazillans at all levels, and to attract them to Amazonio would prove prohibitively expensive. So Di Kerr is able to take full edvantage of the current academic recession in the northarn hemisphere. There ora six scientists Foreigners are being recruited One of the British scientists of INPA. Mr Anthony Rylands, lo working on the breeding of mon-keys in captivity. In 1973, et least Reys in captivity. In 135, at least 30,000 monkeys were shipped from Amazonia for medical research placing some of the 30 varieties at the 150 prevent this from happening, es well as to increase revenues from this source, it has been decided to try to set up virtuel monkey forms to the the populary.

The University of Munich, the largest in the whole Federal roof its situents students students students students students students students from an all costs and es quickly es possible. One of the region and the present 8,000 to 2,800 and the number of example, rould be reconced from the present 8,000 to 2,800 ond the number of economics and sociel science students from 1,200 to 400.

The Spanish department would be closed down ellogator.

The Spanish department would be closed down ellogator.

The University of Munich, the largest in the Whole Federal Republic, would lose 65 per dent of its situents students from all costs and es quickly especies from the current government policy of developing and the present 8,000 to 2,800 ond the number of economics and sociel science students from 1,200 to 400.

The Spanish department would be closed down ellogator.

The spanish department would be closed from the spanish department of the reads to be an universe from structure t

The Carbolic histogs who act as trustees and governing body of St. Patrick's College, Maynooth, have touched off a note-scale academic continuers by writing in two means of the college staff threatening them with dismissal if they do not offer to tesign.

The two men concerned are Mr Makeby trRomcke. A fecturer in professor of hoje. Mr trRomcke by professor of logic. Mr trRomcke by professor of logic by tracked by logic by logic by logic by tracked by logic by l

The reasons why the history are threatening the dismissals have not yet been unde fully public. In the case of Mr. O'Rourke, however, it is thought that they include his failure to live on the college premises. In the case of Father McGruth, the bishops argue that some of his writings have brought the college and the Culbolic Church into disremate. sent one. Some members of the Maynooth staff hope that the creavion of such a new londy woold clear up many of the anniguities in the present urrungement and help pace the way lowards a nime orthodox system of staff tenure and appointment in the non-seminary side of the college.

disreparte.

The position of the two mee will be substantially better when the Unfair Dismissuls Bill, which is seeking a meeting with the Higher matter of grave urgency " It is also seeking a meeting with the Higher Education Anthority, which last year correctly going through the Irish parliament, has been massed. This will give them the right ro unpeal allocated over tim of public money to Maynooth as purt of its general funding of third-level institutions.

in the context hoth of new legislation to give Movonith independent unitered to give institutions.

Support for IFUT's artivities in uther this universities and colleges because of the new legislation which will give independent uniterations. Support for IFUT's artivities in uther this universities and colleges because of the new legislation which will give independent on the country. As things since the result of the whote affair also has substantial out there this universities in uther this universities and colleges because of the new legislation which will give independent on the country. As things since the new legislation which will give independent on the country. As things since the new legislation which will give independent on the country. As things since the new legislation which will give independent on the country. As things since the result of the whote of the new legislation which will give independent on the risk universities on the country in the country with the provide for the new legislation of the new legislation of the new



mainly because firms in the south can avoid anyling tax if they lavest their profits in Amazonio under au incantive scheme. Meny just cut down the forest end cleim the cash.

Another area of research is into can avoid haying lax if they invest their profits in Amazonio under au incantive scheme. Mony just cut down the forest end cleim the cash. Another areo of research is into

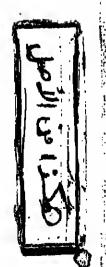
Another areo of research is into the wood resources of Amezonia. There are some 600 vortetles of trees, but very few of them are rationally exploited. Existing lews and bureaucratic procedures make it so complicated for fermers to follow a realistic forestry policy that most tend simply to burn down all the tracs.

One of the British scientists of INPA, Mr Anthony Rylands, lo INPA, Mr Anthony Rylands, lo INPA, where the bearding of moits to the process of the British scientists of the British scientists of the process of Amezonia, button, density, longovity and so on. This has made the formulation of a fishing policy very difficult.

Fish are the basic item of protein dwellers, most of whom live on, or very news, a river benk. Some variotics, cotably the valuable dorado, here are any the process of the British scientists of the process of Amezonia.

In the trace of the British scientists of the process of the British scientists of the

The work of INPA is a counter-force to the haphazard development of the region. INPA ectentists are also not conduced that the estab-illshment of large-scale plantations in Amazonia is wise. Now pests and plagues can appear auddenly, and destroy or threaten crops, as has happened both with rubbar and,



HIGHER EDUCATION SUPPLEMENT New Printing House Square, London WCtX 8EZ. Telephone 01-837 1234

Education and industry

Not more but better engineers: more means worse scientists?

The most important public Issue for higher education in 1977 is getting its relationship with industry—end the wider world of twurk (and wealth?)—right. It must be put in this simple and perhaps unhelpful way because no one seems at all olear what is wrong. An almost stavistic feeling that comehow the present relationship is not quite right ocems to be far mora eightficant than detailed and specific complaints about what la wrong.

Yet in opite of the dangernus lack of defi-ultion about the routs and the dimensions of this "problem" it has noverthelesa been this "problem" it has novertheless been clevered into on important public issue. On its smisfactory resolution will depend not only the good name af universities und colleges but the generoeity of the public funds that will be made available to than in the caming yours, it is for these reasons that The THES has published in the past month a series of mojor articles on this theme.

One reason for this lock of definition is that this "problem" of the correct reintionship with industry is ant indigenous to higher education but has been imported—from the uls where in the form of Mrs Williams's Creat Debate it is concerned primarily with standords but obliquely with employohility, and from politics where the Government has pliciad its hopes on industrial ragenceration through a partisan pro-industry policy. This means there the ominions (and the prejudices) of industry are listened to with more oftention than might have been the case fire averaging them might have been the case fire averaging them.

Aunther reason is the disjunction between the quality of British higher education and that of British industry. If n league table of countries was constructed in terms of the quality of their universities end collegos, Britain would be very close to the top. The only certain superior would be the United Spress Even in ocientific and engineering higher education—site area of alleged weok-neso—few institutions outside the United States can be compered to Imperial, UMIST,

Yet the visitor to Paris or Brussels is reminded immediately of Britain's position. in the ecanomic lengue table, struggling omang the relegation candidutes at the hutton

of the first division. In a few years a visit to Barcelona or Athens may be equally revealing. Perhaps it is hardly our prising that there should be some occasional differences of omphasis batween a higher education system appropriate to an advanced, progressive and technologically sophioticated ecasiomy and an economy that can no longer honestly be so

A third difficulty arises because there seem to he two distinct strands in this inchante diesatisfection with the present relationship beliveen higher education nut industry. First, there are what could be called the nilcroproblems: the fallure of universities and colleges to recruit such able students for science and technology courses as for those in arts and social sciences and the perennial mismatches between the autput of graduotes and the conflicted in constitution.

and the available jobs in specialized areos.
Secondly, there are the mucro-problems:
the apparent lack of respect on the part of
mony in higher education for the creation of
wealth in a free enterprise society by getting
one's hands dirty—sometimes literally by
being an engineer, sometimes metopharically
the making medica—and the lack of scientific ty making profita-and the lack of scientific and technological literacy among policy-makers and opinion formers.

All these, often gulte discrete, phenaniona

Southamptan and other British universities really cansidered what the questions should ing education but this should probably

to the delicate and many-sided relationship between higher education and industry has between higher education and industry his encouraged two stock respances, the exhanatory and the lineor. Tha first, proferred by Government and CBI, was based on the assumption that the "groblem" could be solved if universities were subjected to write the first profession of the second, preferred by many scientiats and engineers in higher advention or the commentant that full culture. education, on the assumption that following the exampla of Cenerol Hoig the "problem" could be solved by more bodies.

This is still the most dangerous policy—in try to tie intakes but higher education mure precisely to projections of manpower needs. This would inevitably encurrage excessive specialization of courses and campaterious lighter and distributed and distributed in the course and campaterious lighter and distributed in the course and campaterious lighter and distributed in the course and campaterious lighter and campaterious and camp partmentalization of disciplines—because that is tha woy industry would like it and to lic foir it is difficult to see how such detailed monpower plonning could be ottempted with any prospect of success if the vorious categories of skills and jobs were not disaggregoted as far as passible. Croduate scientials and engineers would find themselvas walled up in on academic/vocational ghetto only s little less secure than thot in which toachers are imprisoned. In fact more and more groduote scientists ond englucers trulned in narrower and narrower specialisms ore not needed. There is no shortage of gond srlentists in research and development (indeed there is mure than o grain of truth in the heresy than Britain has too warm coloriers. All these, often quite discrete, phenanional layer been mixed together in some giganic gaulash-like "problem". Fow people have plausoil to consider seriously whether the solution to one difficulty, for example the mismatch between supply and demond (in ony case much oxaggeroted), might ant in fact make another worse. Now there is a danger that universities and polytechnics all too uncomfortably aware of the beady goze of Government and industry upon them may rush to provide answers before they have

ing education mut this should probably be pure of a much more fundamental resinguishing of higher education rather than a me isolated solution on the SISTERs palent.

A second requirement is that there should be many more people with a scientific and in particular rechnological backgroup among those who make the strategic ded sions ubout the development of the economic and in the future these strategic decisions are as likely to be taken in Whitehall as in the boardroom, whatever the political cosplexion of future Covernments. It is alongly not adequate in a society of growing technological complexity that so many of his less ers, official and unafficial, are history of English grathantes (or even economists). The has happened because these subjects are seen as sultable vehicles for the general electrical of a future ellie white cheatstry of physics are not. The contrast with Francisco striking. There the clite sector of bide education, the grandes ecoles, are presentantly scientific and technological laws. ilous (with some distinguished excepted like the Ecole Normale Superieure). Leng are for the also-rans.

The third requirement is the most limped uf all. The weakness in Britaio's economy and society lies os mach in the middle at a tribe top—middle-munagers and salesmen and halms that are more bureaucratic than one preneurial, and technicians whose self-estes has been deflated by the increasing number of graduates (who in turn are often dissis-tied because they are forced to accept job which they regard as imappropriate. If the Covernment is serious in its idention a enhance the contribution education makes a industrial progress, it should give more sources to the development of technical colucation, extend dey release whim the framework of a new certiary sector, and a pand opportunities for more advantal

the United Kingdom, 115—United Stateo, 40—Canada, 40—Australia, 36—Raguhilic of Ireland, 10—Nix Zaaland and eight—West Indes.

The scheme is run by the Central Bureon and the Office National as bobelf of United Kingdom educings

departments ond the Ministère de l'Education.

Candillotes for assistantships, highly racommended or integral

LETTERS TO THE EDITOR

Demand for engineers

ecting he has no right to assume that a sultable job will be waiting for him when he qualifies. However, it should be petently obvious that his chances of eccuring a job in his chosen profession are faitigher than his arts counterpart. In other words, from the point of ylow of return for hivestment thate

Sir.—Articles have oppoared in the educationel press recontry chollong-ling this need for this country to produce more englineers. It is of course difficult to see very far shead in hamatter in manpower forecasting but a country such as the United Kingdom winase, very axistence depands upon its productive copability must surely place its rosources in those most likely to contribute significantly, to the total industrial effect.

Toelleve it would be outle impossible to overproduce well qualified end able angineers. What we must stagard ogulast is producing to mooy poor engineers and too few techniclass.

Wo me howover in a parlous economic situation and of the moment ive have, as a nation, invested heavily in o brood spectrum of educational (and training) plans are heading in the right direction.

This inavisably moss the question are heading in the right direction.

This havisably moss the question are heading in the right direction.

This havisably moss the question are heading in the right direction.

This havisably moss the question are fend out of education rather than non-vocational coursas? The finavisably moss the question are fend out of the moment in two have, as a matter in the schools. For too long, have there bear too few capplas are heading in the right direction.

This havisably mass the question are fend to the productive of the productive of

higher education level be to support recuional education rather than non-vocational coursas? The transple is that because the time constant in education is to long we constant in the excessively high level of blome on the polar, project our industrial and plans to a point, in time at least courses in schools.

What I fall in understand in all question of too many enginear, the spect lo conclused to importent aspect lo conclused to importent for scientists end ongliners, yet is hardly mentioned in the case of study in engine earlies begins a course of study in engine earlies to not think we need worry begins a course of study in engine earlies to be earlied to be earlied to be earlied to be earlied to not think we need worry about producing too many good engineers to technicians right end to industry obsequently to select the best and reject large. I do not think we need worry begins a course of study in enginement. There are no bely will not be earlied to earlie the headling to many good engineers to rechnicians right end to industry obsequently to select the best and reject to earlie the headling to many good engineers to technicians right to industry obsequently to select the best and reject large. I do not think we need worry about producing too many good engineers to technicians right to engineering graduate unemployment would hit the headlings and the whola cyclo could repeat itself.

be enough to go round. Yours falthfully,

B. F. GRAY, Doan of Engineering, Hatfleid Polytechnic.

epd so leeve it to industry oubsequently to select the best and reject large numbers of graduates. Than engineering graduate unemploymant would hit the headlinos and tho whola cyclo could repeat itself.

What is noeded is a larger numiter of boys and girls seeking ontry to our engineering deportments, a higher stendard of entry and university intokes of a stendy course. Then we can be copfident that these who succeed will layer an exching, worthwhile and vitally important coreer in prospect. vlow of return for investment thare so much to commond in backing sir,—The "myth" of the shortnga coreer in prospect.

technology courses. This does not suggest that we ought to about the arts shib or inlied to replace the fact to suggest the fact to suggest.

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that in this initiative of stringency it is that the fact to suggest.

that in this initiative of stringency it is that make the fact to suggest.

the arts shib or inlied to suggest.

The suggest the shortnga cover to fold the newly created Principal.

The arts shib or inlied to suggest.

The suggest the shortnga cover to fold the newly created Principal of the newly created Principal of

French assistants

Sir,-May I ask for a correction to literate be published on the subject of conditions of appointment on which assistants or appointment on which assistants serve in French schools appointments for the academic serve in French schools appointments for the academic serve in French schools appointments for the academic services in 1976-77 and of those 1,425 are first 1976-77. nsoistmuts serve in French schoola (THES, March 11)? As your correspondent points ont, lectours are indeed often recruited by personal contact and diract nagotiotions beween modain longuage departments n France ond Britoin. This is, however, not the case on the ossistout ocheme administered by the Centrol Bureau for Educational

Visits and Exchanges and the Offica Notional des Universités et Ecolas Notional des Universités et Ecolas
Françoises.

Locteurs' hours and rate of allowance have oftan varied from institution to institution, in both countries, but essiotouts sarve on condition internationally agreed since 1904-05. A posting to enseignement élémentaire ou secondaire meena 12 bours e week as set out in Dopartment of Education and Science Ad-

been halved by 1974. Such o declina bours e week as set out in Dopartments leads not only to fewer new groducteo throe or four years later but also to at least some universities being tempted to lower standards to maintain their intake.

The situation is showing lique of improvement is numbers of opplicants are right and office if the correspondent refers, dead is premature but there may come that time, if the trend continues, when universities are tempted to

It may be a relief for dopert-inquits of French in British univer-sitias to know that no change is in-tanded in the conditions on which their students ere currently serving in lycées and collèges d'enseigne-

Balls Park merger

81r.—Ynur references to the closure of Bells Park College (71148, Feb. or Bells Park College (THES, February 25) gives a vory misleoding lupression. The college, es you note, remedia out its present site until September; 1978, when sleft and otudents mave over to ioin the retain balf of the newly created fortfordshive College of Higher discrete Callege of Higher discrete is very much

R. A. VAUGHAN, Hoad of Assistanta Department Tha Control Burceu, committed in levilding a now. nt the two. They have long work

Youra faithfully,

43 Dorsat Street, London W1H 3FN.

930 he wrate:
Although n bnok called Democracy and Education [1916] was for many years that in which my philosophy, auch as it is, was most fully expounded. I do not know that philosophic critics, as distinct from teachers have ever had recourse ers have ever had recourse to it. I have wondered whether such facts signified whether such facts signified that philosophers in general, although thay ere themselves usually teachers, they not taken education with sufficient seriousness in the court to them that with sufficient seriousness for it to occur to them that any rational person could actually think it possible that philosophizing should focus about education as the supreme human interest in which, moreover, nther problems, cosmulugical, moral, lagical, come to a liesd.

John Dewcy was an extraord-

hary contributor to and parti-

some sixty years. He was edu-

some sixty years. He was educator, psychologist, moralist, legicist, historian of ideas, philosophicul anthropologist, echnical philosophic, popularies of philosophy, essayist, lourislist, social-political analyst, aestheticlan, wide-ranging activist—often on the side of oew or unpopular causes, slways on the side that promised enrichment of life. Obviously, it is impossible to provide event bere even a slettilled sur-

viously, it is impossible to pre-sent hare even a detailed sur-vey, let alone a full exposition of Dewey's work. We shall have to be content briefly to sketch his major uchieve-ments in major fields.

ments in major fields.

Since Dewey held that education was the heart and lifeblood of his philosophy, it is appropriate to consider, him list of all as oducorar. In

Dawsy's oworeness of the possibilities of education was jurtured during the first decade of his university teachling career (1884-1894) by throomsin factors: his stroog interest in psychology, his careful often minute, obser-

Mas raylsed and expanded; Osway was now at Columbia University (1905-1939), and tend sum up the syidatice and meanlog of his unique appelment. Also in 1915, be published with interest and sawe off the breaches, published with interest and sawe off the breaches, and analytic and evaluative theory up by its roots and sawe off the breaches, the latter all balariourism based on the concepts of "impulsa". Early vantures. A your later speared Daway's londmark Democracy out Education, all used in philipsophy of education eourses.

Through the years, Demoy's principles were sametimes middy, sometimes violently, distorted by disciples and pseudo-disciplas and e justicular of the dynamics of tend sum up the syldance and meaning of his uniqua experiment. Also in 1915, be published with his daughter bryey of selected Doweyan Progressive and nyant-sarda vantures. A your later speared Daway's londmark Democracy ond Education, all used in phillosophy of education courses.

anolyse, evaluate, and con-demn the accumulation of distortions and excesses in Experience and Education (1938), his last major work in this field. Dewcy's leading role in American psychology was second only to his role in American education. His first

rinut mass of institutional

excesses were perpetrated in his name and in the name of "progressive" education.

An educator extraordinary

John Dewey wrote a vast amount in his long academic career.

Jo Ann Boydston, director of the Center for Dewey Studies, and

Joseph Ratner present a bibliographic guide to his work.

American education. His first book, Psychology (1887), was a pioneering work. C. S. Hrett culled it "the first gray down of that tonorrow far which the psychology of the American colleges was waiting". It was reprinted 26 times end had two revised editions (1889, 1891). Dewey refused to revise it o third time. He kucw, although others—to

quoic Dewey — were "henighted enough" not to know, that it had become absolete, beyond hope of revision or repoir. For Dewey, this was one of the

pewcy, this was one of the many happy consequences of the publication in 1890 of William James's epochal Principles of Psychology.

Psychology appeared a scant five years after the first psychological laboratory was founded. In this work he sought to integrate the new. snught to integrate the new, objective, experimental results of the laboratories with the old inheritance of subjective, introspectiva, transcendental snul psychology. In the revised edition, the importance of the former was increased but the loner romained the essential, Indis-

romained the essential, Indispensoble unifying element.
Laores's Principleo ilibereted
Dewoy from his dependence
on soul psychology and
taught hint a mathodological
lesson: the futility of trying
to integrate what nt best
can only be ingeniously
combined. But if the soul and
liss multiple services are disits multiple services ore dis-carded, what can toko their

no doubt about that. In Human Noture and Conduct Daway axecutes a complato about faco; he teors tho

Impulse and hobit under certain candhians; it is pure of the superstructure rather than the foundations of his this work is "to restore continuity between the refined "progressive" education, than the foundations of his illusity between the refined Dewcy finally was impelled in new psychology. He nowhere and intensified forms of exnure clearly expounds his conception of the origin and

ment most calamitously. His major works devented exclusively in mainly to the reconstruction of his thinking about thought are: Experience that he did not say to the ting about thought are: Experience that he did not say to the ting about thought are: Experience that he did not say to the ting about thought are: Experience that he did not say to the ting about thought are: Experience that he did not say to the ting about thought are: Experience that he did not say to the ting about art values in Human Nature and Conduct. But what a difference that in the saying largest threes; and Logic: The training in his construction of the ting that the ting and the ting a

true to it in one vitol respect:
he sow all problems of philosuphy os interreloted and
logic os the centrol problem. logic os the centrol problem. He summed it up in 1930:
"I have long felt that the construction of a logic, that is, o method of effective inquiry, which would apply without abrupt breach of continuity to the fields designeted by iscience and morals, is at once our preeded theo.

ted by |science ond morals|, is at once our needed theoretical solvont and the supply of our greetest practical want. Thio belief has had much more to dn with the development of what I termed, for link of n better word, 'instrumentolism', than have most of the reasons ossigned." Modorn scientists developed a "method of sffectiva inquiry" first in physico and asmonomy out refined and developed it as they moved into other fields. To be sure, their "ntethod" was adapted to their special needs and purposes. But could not philosophars learn from them? Dewey was certain

thrownsin factors: his strong his record of the growth and development of liss children (the Irst direct), and his considered what can toke their strong of the growth and development of liss children (the Irst direct), and his corporations as a major of miversity ream that visited and complicated; two high condenses as a major of miversity ream that visited and to find his own. The his corporations are successful to the needs and complicated; two high condenses as a major of miversity ream that visited and to find his own. The his corporations are soloned with secondary schools. Urgad and complicated; two high collections are condenses as a major of miversity retains that visited and to find his own. The his corporation when he was invited to join the factorial to show that individual to join the factorial to join the factor

field are: "Lagical Conditions of a Scientific Treatment of Marallty" (1904);

Ethics; with James H. Tuits
(1908, raylsed 1932); and
Huntan Nature and Contact
(1922).

As we know, Dewey most
fully expounded the philosoin Education of Dewoy's thought,
fully expounded the philosoin Huntan in Experience
in did it again in Experience
in and Natura (1925, revised
1929). In the latter work he
is absorved: "Experience in the
form of art, when reflected
upon isolves more probylems which have troubled
philosophers and resolves
philosophers and resolves
than any other theme of
a hought" fully
graph democracy, the twin
centres of Dewoy's thought,
for him es comprehensive
as wide and deep, as the
valuas and resources of our
civilization or culture.
Deway's first popularizing
book was School and Soolety.
It was eventually followed by
four more slender volumes:
Moral Principles in Education (1909); Interest and
Effort in Education (1918).
The Sources of a Science of
Education (1929); end Experione and pacificat lave
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German Philosophy and Polithis "thems of thought" fully

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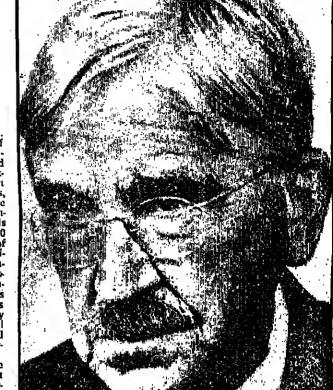
notice that the origin and will the everyday events, notice of thought, of its ride and cultural contributions, thou in this baok.

Dewey'o first extensive treatment of thought was in his first book, but the demisa "effective inquiry" by explitreatment of thought was in his first book, but the demisa of the soul effected this treatment most calamitously. His major works devnted exclusional most calamitously including in his continuum of inquiry ortistic assumption of the control of th

> the initiviled collection of pictures" at the Barnes Fuundation. But hefore Dewey became a pupil of Barnes. Barnes was a pupil of Dewey's. When Democracy and Education appeared, Barnes odapted it for the instruction of his staff. To learn more of Dewey's thought and at first Dewey's thought and at first hand, he carrolled in Dewey's gradunte seminar (1917-1918) gradunte seminar (1917-1918) in sociol and palitical philosophy. Believing that what he learned in the seminar should be put to work, Barnes thought up a project (which the Barnes Foundation finoncad): a Deweyan study of the social and political life of the Polish community in Philadelphia. In the summer of 1918, a solect handful of gradusta students. under

praduata students, under Dewey's direction, made the study. Among the selected was Mrs A. Levitas, a "speciol etudant" in the seminor Barnes of translator.

Mrs Levkas's molden name



in 1942, Dewey larought it up to date with a long introduc-

(1920), the outcome of lec-tures of Jupan's Imporial University, 1t expaunds Dewey's philosophy more Dewey's philosophy more comprehensively than does Democracy and Education. In 1948, Reconstruction in Philo-1948, Reconstruction in Philooophy was reprinted with a
forty-page new introduction
in which Dewey evaluates
what hoppened in philasophy,
his own included, in the intervening years. For initietion in
the basics of Dewey's philosophy, nothing is better than
this 1948 edition which continues to have wide rendership outside and inside
Amarican colleges and universliles.

sities.

Dowey bogan his journalistic career in 1885 as editorial writer for the Christian Union, a pational publication. Although ha was too busy with his laboratory echool to continue journaliatic writing while of Chicago, journalian became a permonent and expanding part of his ectivity in New York, especially efter the founding of the New Republic (1914), of which he was a "contributing editor" for many years.

for many yeero. He was, howcver, olways the philosopher,
not least in his journellsm.

Early in his career he
plannod a monthly newspaper
to he called. "Thought
News". Dewey carefully explained that the "aim" of his
newspaper was "to perform
the function of a newspaper".
It would simply "set forth"
carofully aelected interrolated
facts "instaad of dwelling at carofully aelected Interrolated facts "instand of dwelling at langth upon the meraly individual processes that aecompony the facta"; and it would "not discuss philosophic ideas pet se but nee them as tools in "luterpreting the movements of thought (in science, lapters, state, school and church? I as facts of the one moving life of man and hence of common interest?". Alas, "Thought Newe" never met its first deedline, April 22, 1892.

met its first deedline, April 22, 1892.

Involved in Dewoy's conception of his newspaper Thought Nowo" was the idea chen held by some American Hegollens that the nowspapor was (pr. should bacoma) a manifostetion of the Third Person of the Trinty. The invocation of the Trinty The invocation of the Trinty. The invocation of the Trinty The invocation of the Trinty The invocation of the test of the Trinty The invocation of the invocation of the involved in the involved in the above testions of publication of Dewey's included in July 1977.

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say, of communication, of the miroclo of shared life and shared exparience"; and in Experience and Natura, "Of all affairs, communication is all inffairs, communication is the most wonderful... ond that the fruit of communication should be porticipation, sharing, is a wander by the side of which transubstantlation pales." The miracle and the wonder are not Doway's religion. As he exploins in A Common Futth (1934), he has no religion, notural or ouneruntural, with or without institutional equipment; his sole religious belief is in the cosmic reality of a "religious, quality" that experience achieves, given a favourable complex of conditions which he carefully specifies and describos.

Dewey's participation in the democratic process in the public domain was not limited

the democratic process in the public domain was not limited to journellsm. He wrote four short, powerful tracto for the dimes: The Public and Its Problems (1927), Individualism, Old and New (1931), Liberolism and Sociol Action (1935), and Preedont and Cultura (1939). He even merched in New York streets for woman's suffease.

for woman'a euffeage.

Hency Steale Commager
summed up Dewey's activism: "the spearhead of a

published in July 1977.

Decisions: regarding, the publication of Devisy's professional correspondence have still to he hinde. This project will require, at a conservative estimate. 10 volumes: For future consideration there remains. sldoration there remain.
Dewey's personal correspondante and large quentities of
other meterials. Whother
everything Dewey has written
will be included in The Collected Works will depand
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A footnote in history

The Origins of Physiocracy: Economic Revolution and Social Order in Eighteenth-Century France Elizobeth Fox-Genovese Cornell University Press, £12.00 ISBN 0-8014-1006-1

Physiocracy was one of those intellectual trends which did not stond the test of time, nor hos it apparently achieved an especially impurentry adhered at the special place in economic history. Its main interest today is rather for the historian m leas whose special interest is preideas whose special interest is preRevolutionary France, a fairly nonrow field, but one which is neceswithout its devotees. Of all the
diverse phenomena, whether traistical, social, or economic of the
last half-century of the anciex
regime less have ransed less exciteregime less have ransed less exciterow in the twentieth contary ment in the twentieth century than the physiocrats and their doc-

This luck of curbusiusm is not nature surprising since the whole movement was, historically speaking. The short lived, lasting the more than is with

manages to demonstrate that there is more to interest us in the physical reasts than the story of an economic forford hope aggressively defending a doubtful position ogoinst the twin foes of indifference and octual hostiplity. By limiting her scape to a study of the evalution of physical crafic ideas at first in the mind of Quesnay, then to their development by the fruitful partnership of

agriculture or to change their consequences.

Onesnay and Mirahean, the author is able to relate the doctrines to the social and political environment of mid-eighteenth-rentury France and in place them in the context of the Enfighteenment.

The main tenets of physioverary erece the free market in agricultured labour, could enable agricultured labour, could not only provide subsistence for the labourer but also produce to produce nearly a cosh sorplus (since in product net, a cush sorplus (since in product net, a cush sorplus (since the monetney value of the would us well as the state itself. In physiocratic eyes agricultured the material and wantifacturers, making up what they designated the "sterile" sector of wealth. Merchants and wantifacturers, making up what they designated the "sterile" sector of the discrete in the content of the discrete in the content of the physiocratic eyes agricultural products of agriculture up to change their sort of the content, were thought merely to circulate the products of agriculture or to change their nature, but without adding to their

An agricultural revolution of the The central concern of this hook kind they hared for depended un surprising since the vivole movement was, historically speaking, short lived, lasting no more than twenty years at most, and never achieving even a semblance of universal occupioned for its views. For the listorian the physiocrats occupioned for its views. For not usually much more than a footness such an approductive and in the mid-1750s, the articles are committeed in the articles are committeed in the mid-1750s, the articles are committeed in the articles are committeed in the articles are committeed in the contains of his cooperation with Miratean deventual are also are committeed in the entarged recision of a completely money continue that the results of his cooperation with Miratean deventual are also are committeed in the entarged recision of the latence of the l

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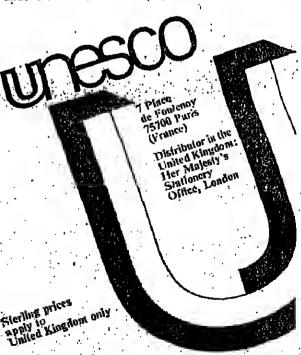
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Professor Collard's short book b neither on exhaustive presentation of historical fuct nor a popular account of micrublelogy which simply lighlights dramatic medical simply highlights dramatic medicol events. Rether, it presents, for the pestgraduate student, the unfelding development of ideas, techniques end applications which have illuminated and lofluenced major parts of the subject, according to the continuously ovolving state of knowledge.

The unther clearly finds his subject from the mid-ulnercount century and, while the historian might comment an the emission of seme distinguished contributors and on some prints of precedence, other workers receive due, if hitherto uncenturked, recognition. rentarked, reenguitlau.

remarked, renginian.

The emphasis throughout is on development rather than on the cooleguing of facts. A broad and bulonced perspective relotas the past through the historical present to the foresecuble future and the deeds and insights of the drametis persance are unurshalled as continueusly moulded or reconstructed models, elaborated or simplified te comprehend naw advances, particularly in the chapters on chemotherapy, matobelism, genetics, surology and intended future fecularies of entibody furnation. Even the accounts of culture media and botterial classification are sured from the tedium which they sometimes engender by their cacherence and careful aelection of detail to illustrate principle.

The bnek cavers much ground, ond each chapter is followed by n list of original references, many of them from the French and German the mid-distributed and definant the mid-distributed the mid-distributed the test 1960s. It is probably right that future historians should be left to terninus more recent developments three mere recent developments three specialist in virulogy, mycolnay and cellular immuniongy might feel a little deprived and the epidemiologist, tha practioner ef untisepsio and the student ef pathageneois receive scent mention in n volume which chews o distinct, though tempered, medical blas.

Saperate indexes of subjects and names ore useful, but the 50 figures, including 38 photographs of ladividuels, are gerhaps more suitable for the lecture room. Names of men, organisms and drugs are frequently mis-epsiled and references are semetimes insecurate; there are some factual for this book has been critically calected, assembled with linagination and experience, and linagination and experience, and

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Demographic Anthropology: Quantitative Approaches by Ezra B. W. Zubrnw University of New Mexico Press, 220 00 ISIIN O B263 0413 3

World population is increasing at 200,000 persons a day. If present trends cuntinue, it will be increasing by half a million persons a day by the end of the century. It was purtly to this context that a greup of cultural and physical anthropologiats and archaeologists, most of them world authorities, met at a sentinur in 1973 tu discuss the causes and consequences and population grant consequences of population gruwth. This book contains their revised popers on the tuples discussed.

popers on the tuples discussed.

The orchneological approach is represented by articles by Cavalli-Sloran and his associates, in which they oftenpt to devise new ways of estimating papulation growth in old world prehistory, particularly by exemining the volume of rubble produced by fullen dwellings. Langaere reports on a project on an Arizonan nueblo from the fourteenth century and speculates on its probable growth rate. Finally, Zuhrow suggests some very general models tu gests some very general models to he used in analysing growth, following the work of economists and archueologists. It would have been more sensible if these essays had been placed together, rother than spread through the volume.

The cultural sathrepalogical papers include Blaford, with calculutions by Checkn, presenting striking evidence for his earlier thesis that the transition from hunting and gathering to a sedentary way of life preceded a rapid riso, in fertility, faipressive data from an Eskinn group throws light en the current debate between followers of Molthus and Esther Boserup. Humand reveals his new computer funimel reveals lils new computer simulation progromma package (SOCSIM) in action, in arter tu demunstrate that difference in the ege at marriage, botwean husbond and wife strongly affects the prahand wife strongly affects the prahability of n man marrying, his mother's brither's doughter. Finally, Arthur Wolf centinues his earlier theories that familiarity between moles and fomales in eerly life sets up aversion, and suggests that this expluins lowered fertility ameng thesa who married a spause adopted inte the family as e child in truditional Chins. There is ene contributional Chins. There is ene contributional Chins. There is ene contributionally a physical sathrepologist, Spuhlar, which examines the genetic ensequences of the spread of birth control. He argues that genetic diversity is now less affected by differential fertility, and niore by differential fertility, then it used to be.

The Europealt Epic and

Dimitalic Traditions

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An incestor headdress, possibly representing a chief honter, and in wood and palnicd, is one of the many illustrations in estudy of the of the Yurnba peeple of south-restorn Nigeria and Deboney, with Black Gods and Kings by Robert Forms Thompson. It is published

Of mines and men

Indistry and of milicis' tride union-isin is the comparative neglect of develepments in Yarkshire. As the premior coal-producing district in Britain and the hame of the coun-try's first permanent miners' trude union, it is clearly time that a serious study was made af the county. Nat eally would this prova a welcome addition to the existing e stock of regional studies of the coal-fields but, equally humartent, it Spuhlar, which examines the genetic consequences of the spread of birth control. He argues that genetic diversity is now less affected by differential narrality, and niore by differential fortility, then it used to be.

Although the contributors have used quantitative methods in their analysic of strengths and anthropalagical data, the genetic consequences of the spread of birth stock of regional studies of the coaling tenthe existing stock of regional studies of the coaling tenthe existing to the existing the economic lend of the coaling tenthe existing to the existing tenthe existing to the coaling tenthe existing to the existing tenthe existing

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Studice in the Yarkshire Cont Indus-iry Studies in the Yarkshire Cont Indus-iry I Benson and R. G. Neville Yarkshire caal indusiry by J. Benson and R. G. Neville
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One of the most notable gaps in the literoture of the coul mining industry and of miners trade unimplements the coulse of the nathy towards trade tollowing the Taff Vula decithu reflective views of life by Suuth Yorkshira mining village Density Main between the way

wife.
The editors' critical hiblioge

factors for chords subtended by angles at the centre expressed as e function of the radius of the chucumseribing sphero. This last is e unique collection which enables many polyhedra to be emistructed with a high degree of eccurecy. Even though some of this may be considered fairly standard stuff, the approach is attractive and easy to follow, and I prefer it te many of the books available.

The structurel rules of tensian and compression are knewn from elecan develop some most amozing looking tensegrity structures. We find thet n "tensegrity system is established when e sot of discentianous compressive cempencuts interacts with a set of continuous tensile components te define e stable volume in space". If we can construct a continuous tensile network, we have tensiled interaction. te which British conl-mining as is seriously deficient in it felt of Yorkshire, the editors might have discussed in a control chapter the way in which error reletively circumspect studies thinged thorein reveal those pregional charucteristics wild inguish the caunty from the producing regions. Those controls in the state of the we have tensional integrity—" tense-grity"—a system with structural

Nuclear warning

THE TIMES HIGHER EDUCATION SUPPLEMENT 18.3.77

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y Hugh Kenner Jalversity ef Callfornia Press, £3.98

These three books in the Done Serlos are amounced us "practical books for the architect er engineer who works with geodesic structures, resource books for mathematical bobbyists and model huildere, textbooks for students of design, and resding books for anyone who wants to understand the tensile forces that keep these apparently filmsy structures theer." They follow the independently produced Domebooks and Shelter in formolizing the work of Buckminster Fuller, Lloyd Kalm, Kenneth Snelson and athers.

Geodesic and tonsegrity structures

Kenneth Snelson and athers.

Geodesic and tonsegrity structures have been known for about 20 years, but it has been noturiously difficult to obtain any reliable detail on their method of construction, ar a simple analysis of their structural plinciples. Ironically, we rely an a professor of English to show us how accessible these idees of "geodesic

accessible these ideas of "goodesic math" really ere.

There are many books en poly-hedra, but this one is written pur-

ticularly with geodesic structures in mind, to encourage the non-mathe-

mind, to encourage the non-mathematician to explore regular and semi-regular convex pelyhedre, their duals, prisms end anti-prisms, as a basis for the development of several families of polyhedre, including conliguratione obteined by jeluing several together. What is new is the detail of triangulation of plane laces to obtain square or triangular openings, and the technique of truncation so that a cap of o given size any be unde to stand on a plane

polygonal base.

. Useful appendices cuntain basic formulae end worked examples, hints on model building, and cherd factors for chords subtended by

compression are knewn from ele-mentory statics, and if we imegine a polyhedral skeletou where the reds in tension are replaced by wires, we can develop some most amorbing looking threadyn street was

Geodesic Moth and How to Use It

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On geodesic domes

The Accident Hazards of Nuclear Power Plants by R. E. Webb

versity of Massachusetts Press, ISBN 0 87023 210 X

possible accidents and their associa-ted hazards which can arise in the operation of nuclear pewer plants.
After a description of the besic probdevoted to types of reactor accident, design basis accidents, worst pessible accidents, and accident probabilities. Other chapters review some of the major safety reports published in the USA, and our chapter is entirely devoted to the beauty of the fact devoted to the hozards of the fast breder reactor. An oppeodix sum-marizes briefly the accidents which

we scluslly occured on operational It is difficult to determbe which esders the author is niming at since ha descriptions of occident soqueness are not given in sufficient detail workers in the reactor safety will find o lot of the discussion difficult to green and officients. calt to grasp and net a little cenfus-

The aim of the book is to empha-

size the hazards of nuclear reacters, and to show how unsule; they are. The author concludes that deem peading mare experimentally darrived safety infermation. It would have been advantagenus in have been given mere of the other side of the coin, thereby oppealing in a lerger public.

There are numerous instances of the author's bias throughout the book—for instance he suggests that quality maintenance is jubilised.

bonk—for lastance he suggests that quality maintenance is lubibited when workers are in a radiation zone and they will tond in hurry their work—no supparting evidence can possibly be cleimed for this view, quite the reverse in fact. He alse seems to be rather disappointed to nete that olthnugh there are an many ways in which serious accidents can accur, none have hoppened an for He suggests that such e record will not be muldtelned wheroes it would be a better canclusian te suggest that recoters are being apported safely under the esteblished regulations and practices. However, the book does provide interesting reading end gives e most useful summery of the sefety issues involved in operating reactors.

New Books

NEW PAPERBACKS:

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There is a hint in this definition that the tensegrity principle may the applied in situations autside the immediately apparent geometricular context. We find, in assiest figures to structurely apparent geometricul-structural context. We find, in fact, that the ensiest figures to explure we out thuse based no stan-durd polyhedra, but are more like some tents where rads and gays not but the same plane cun distribute Replinel Saaley This beok intraduces the reader history, concentrating more on and other documents which rep-problems the on nerrotive. Out-resent the essence of Arab lined are controversial issues of pationalism." stresses applied at particular paints around the whole system. Any inaround the whole system. Any increase of lorces in a tensegrity system increases the strength and load-hearing capacity of the system, thus apparently flimsy structures can hear surprisingly high loads. The hoek is a foscinating description of such structures, and 60 pages of appendices contain suggestions for materials, techniques and methods for making mony models. which ditiaring views can be —Midrila East Sinc dalandad. Mr Saalay's preference Californie, 255 pages, £2.80 is for interpretations which see Greek history as the interaction these which see it as a cirupple el econemic clesses er sbairaci idees. Cellternia, 516 pages, £5.50 Geodesics is a technique for making shell-like structures that hold themsolves up without supporting elements by explaiting a three-way grid of tensile forces. The oin efficatesic Math is in facilitate the more widespread use of geodesics by themenstrating the mathematical rechniques so that architects.

THE HOMERIC HYMNS Trensislad by Apostolas N.

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end free-form goodesics can be used te form a variety af useful end beautiful demes.

The calculations require an electrenic mochine with rig and power functions (the HP 35 was used here) and wauld be easier if it cenid be programmed as well. Appendices centain tables af spherical coordinates, calculator reutines cal coardinetes, calculetor routines

snd programs.
All these henks are well preduced and easy te fullow. They can be used independently either as caurse books or for reference end empley e range af mathematical techniques relevant te the fields af ert, design, architecture and engineering. They are the control of the control o should at least be a useful addition to a librery, and could well countlibute to better understanding end more widespread use of a simple and powerful idea.

hy demensioning the mathematical techniques so that architects, designers and engineers can explore the potentials of such structures. Domes have been constructed fer many years, but the major preblem has been how to cantain the forces generated by the weight of the construction materials. In a gendesic dome a system of equilibrated stresses is pulled amount into soliericity by its own tensional

sphericity by its own tensional farces, it is not a stote of rigidity,

but a state of equilibrium. There are no points of lecal workness in the system, for when e strut is displaced by the application of a stress, the whole system undergaes

synanctric inndification te accem-madate the lacal mavement.

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and shews how they can be designed to predict their equilibrium states, while the second part upplies in detail the methods of spherical en-

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Erich Heller has long asserted the of reorienture the fractured sensibility and values of what he so memorably defined in 1952 as The Disinherited Mind. If the first language of the "modern spirit", in so far as it speaks at all, really is and polemics, and who left no pactry, suidely observed of Briefle that probably those more than invasie clse to help it be understand in English. His work stunds against all attempts to diminish or contrain the native complexity of great literature. Its most characteristic strategy is an exquisite sense of Professor Heller is a metaphysician of literature, ever celebrating those truths which live

1975 Lord Northcliffe lectures at University College Landon, he dis-cusses The Poet's Self and the Poem with specific reference to four German writers, ell poets within the 19-year-ald Ulrike von Levetauw at o fashloundle Bohemian spa, and the poet's consequent refuge in the Maricobad Elegy. After "Nietzsche

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Reproduction in Mammals 6

is arere affence in the spirit unless it is transfigured and comobled by Young Ulrike was however certainty no "offence" to Enothe, not at any rate until she, or rather her mother, said "no" and removed to the nest watering place. Even then, ell was not hist to the Gotthe who in the great Marienbad Elegy, begin In the horse-drown catringe on the way home, could bring her buck to stand at the very Gates of Paradise,

beckening the poet to fullow. Kierkegnord, who rejected Regina, the girl who loved him, for theology "As some as any situation in life threatened to gain the upper ham), he escaped from it he turning it has a pnem". In fact, Goethe attained one of the better halances between a lived-life and an art transcending it. Even when the natural world has altandoned Guellie to his misery, it is an less beautiful and still a source of wonder and desive. Professor Heller's comparisan is with Hamler's "unweeded garden/ That grows to seed", though he does not hazard a view as to whether Shakespeare also felt that way.

ther Shakespeare also felt that way.

If Nietzsche fits least easily into the pattern of the hook, that is surely because his life was such a miserable, frustrated affair. As Thomas Mann was later to write of Leverkülin in Hoktor Funstus, his was the flight of a hoveless life into the home in the inherited interpolations of existence. But after the polarity as the strength of the hoveless life into the inherited interpolations of existence. But after the polarity as the continues of existence.

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19-year-aild Ulrike von Leveziaw at a flight of a haveles life innoted by the poet's consequent refuge in the fires of cremium. Nietzsche in the Waste Land ond "Rilke in Parks", the final essay is devoted to Thomas Manu's transformation of the day-to-day accidents of a Venetian infliday iwn a maral fable of the abyst that awoits the unwary Apolloulan.

The philmsopher whin looms Isrgest behind the essay is Schopenhauer, who held that the essay is Schopenhauer, who held that the world of the interior in the ideal. But first the interior interior interior into the interior interior interior into the interior i

In Thomas Mann nor only the price paid by the poet for los ari-lun also the terms of the confect rome under theless crossesamination. The accessary condition tor that Custae Aschenhach should have had no life but his act, his writing. He was literature and fell victint to life's first serious assault or his citadel, to passion, to Tarlon. That was not Thomas Mann's new story, though rery nearly, one may sorely gress. Mann treely

Lithe beach, and an elderly Polish aristocrat unit so hong near mened up to having been "Tad.in" all those years ago. Nothing happened otherwise there would have been no confessions), but it was the laseivous apprehension, the cold swear of possibility that Mann most hace known and conjuned away from art. The events of Maun's largely mondain life are transformed with high deliberation ignad'Aragona's Inte l'Ich bin die Lande 'I, in Saint Sebastian, in the panther in the Jardin des Plantes, padding bebind his wall of a thursand burs.

"aesthetic phenomena." and hence justified, It is Apollo, Donnesus and Hermes who await Aschenbach on the piazza and along the canals of the city where Isoble's Jave. death, which is pure Schopenhauer, came to birth and where Wagner himself later died. Through orarb and symbol, events may be rescored from the dreary day and tight a

Told by intimation

auguage and Knowledge in the by R. H. Yeazidl

It is one of the croellest principles of a cheerful rationalism that knows ledge is mood, obscurity and ignor-onec had, and that to refuse knowledge is as perforse as refusing fond. It is a principle about which fleury Jumus, us ever, felt fastidi unsly equivocal: "Knawledge, knowledge was a fascination as well as a fear", is a sentence from The Golden Hugh which Ruth Yearell adopts us the epigraph to her superb study of language and know-ledge in the late James.

The dialectical play between the altraction and repulsion of secreey and knowing in Jemes is the theme of this lunk: knowing other people, deceiving them, deceiving the reader, concealing, lving, reluding, equivacating, or in fine, waking fictions. Knowledge, like Strether's encounter with I had and Marle by the river or Maggie Verver's meeting with the autique dealer after ing with the antique dealer, after comes in James as profundly disconforting, knowledge bourted to new cares or persistent intense,

sometimes even august.

The specifical problem in James which specifically verb in James of the specifical metable of the specific problem in the second volume of The College problem in the second volume of The College problem in the second volume of the specific pour an "intimain", hinting omning faintly, sinistor and obscurely harmful andifiguities, at meanings continually deflected and paspaned Ruth Yeovell sets out in explore this morally ambiguous "blurring of vnices" and in Irack diwn the elistive muments of James's fore prose, minematic where "parts were not to be discrioulated nor difference comfortably marked and whot seemed oil surfoce one mopuum accorded eli depit the next." (The Aubossodors).

Concentrating on The College Bool, The Aubossodors, The Wines Soft Fount and The Ivory Tower, she discusses with considerable brillence the, way in which plots, charcelors and Jamesian syntax cross back and forth between the security and marked purchased the subject itself, this back in the highly recommended indeed start of the deliberato and unconscious and famesian syntax the simultaneous concentment and Allon White sometimes even augnish.

late James on "epistemologically misettling". With an envolde grounny of expression, hard and precise, Yeazelt reconstructs montents and issues in the tate movels which are so complex and mobilihed that almost our retor strictive account is a souplification and a herraval of what was artifally at stake:

Necessary as we foul a to deter mine what are total trooks here, what mere self-deceptions, and what lies, we do so only by dis-Stancing what actually happen in us as we read these maye). translating them of the processing of a selection for

He analogy with Colding and design on the term analog with the term and the term an James's removued a indirection style is interpreted here as his ing an urgent theoriest function an opposing doubleness which serks name and mear-meaningly unlined speech. At any b not to tell, a sure of certail resection of the most distant and instalment distant though related the most distant and instalment desires, one of which has trayal of James's New World ionor cent, to whom the moral andingurous of the Old World. cent, to whom the moral andingingues of the Old World appear as stati-ling and enhappy revisions of existing landledge, find their place in this wider description of the pointal acquisition of motorstanding or James. So, too do the control of the pointal Roy Parcal's critical and

acquisition of understanding of nucleonial acquisition of understanding of culture. I evenly the factors of understanding of the page of t

James's fiction previously condidred separately.

Although there is always an easy profit to he made hy writing almost secrecy and deception, an lacyling secrecy and deception, an lacyling incompletes the frust the subject itself, this book is in be highly recommended indeed security and cloquent security and cloquent scious acts of myslification in James, the depils of tyhich are such a vertaginous and puzzling adventure.

Alton White

Speech style

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The Economic Advisory Council

Cambridge University Press, £17.50 ISBN 0-521-21138-7

It is not always that a dictailed historical managraph combines im-portant subject matter, a wealth of

historical and contemporary unite-tial and skill in his treatment and presentation. Here, this combi-uation is present to a remarkable

degree and the authors are to be congranulated on their achieve-

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The theme and the way has developed ure straightforward enough: a history of the Economic

enough: a history of the Economic Advisory Council, started in February 19,10, virtually in limbo from April 1931 obvarils, but followed by other committees, ut which the Coambines on Economic Information (appointed in July 1931 and in existence until 1939) was the most important. Less than built the book contains the nutbors' contains the nutbors the nutbors

by Susan Howsan and Which

Economic advice

The Dual Volce: Fre le Sprech and its Fundledge Nineteenth-century Europai hy Ray Pascal Manchester University Prest

An opince of Mastraia, worth a pound of defision-talic o contropping is: the sect of thing Professi He watched Kale small

the large scenery, in terriant braided anorsk to black half in ratsons at cheeks red with the whell all. He had gone to he and the control of the had gone to he imercention, he had at them to their how to take their land thought out the land thought out the reacher the land thought reacher the land the land thought out the land thought out the land thought out the land t lescence, trustingly, or the reasons for which kept himself agan; Eshauld they, why should ever? The lirst sentence hereis

third-person remainder free indirents.
FIS, to use Roy Paschi
acronyma, with the posible
tion of the first part deas simple traffect specit Margaret Drabble 85 it b alternating with that of

The despendent oxens convo. to be understood are colong, even mentally, but attributed to him Roba, represent, in summary has cold communing. his safe my. So the term invented in Toba, "narrated more much appear more optical mollicert speech", ao and mollicert speech", ao and mollicert speech ", ao and mollicert speech speech ", ao and mollicert speech speech ", ao and mollicert speech spee However the same to device, with the same gar, perultarities such as the \$20

mutual friends; the

Only that marning. He s had a wer ride.—Yes

well ... When had be hat the

Important. Less than bull the hook contains the nuthors' condensed, highly readable and perceptive analytical description of this history the rest, in the main, prints for the first time selected documents produced by the Conneil and the Committees, a full set of notes, an annotated list of notes, and an admirable index. In short, here is the full picture that one would expect from a first-closs manograph which has benefited from the 30-year rule and access to applicabled papera of Keynes, Macdonald and Henderson.

But this book is much more. To But this book is much more. To anyone interested in the interplay between friens and oction (whether to a third person between ireas and oction (whether 40 years ago or now) it is a totally absorbing and faschading study. Beblud the measured prose of two scholars there is unfolded a tale which would do credit to the most inventive writer of a "Western". "The situation of nor time surrounds us like a haffling crime", wrote Anden in 1940 when the fragerly of a generation (this hook deals with a vital aspect of 11) had reached its clintax. present to past tease for teast for the control of ing "He did out really is children", is found in f which the term "narrated?" pue " cauld clearly not his lane Austen's report of its lingue between limits for Enight lev. The How dye do to opened and constrained at side. She usked also reached its clining.

Here is an account of the action if "goodies" and "haddies", not o recognizable us in a film since the actors wero probably in the grip of forces and idees they were lardly conscious of, but terrifying to behold even in retrospect. Where did Spowden get his views? What baleful Influence did the Austrian school exercise (inderson, never very much aligned. derenty)? Why did Herbert nen-derson, never very much aligned with Keynes, move still further away nutil in the end his views could have been the reproduction of the most jejino of current preceived opinion without the

Reservace benefit of any ecomonic theorizing? What of the Freasmy view? How disk it develop and where did it reside? Hawrey's role is well-known; but even "Hoppy" (Sir Richard Hopkins) was by no means mally closed to the new ideas which Keynes was propagating. And Sit Frederick t" Frethlie") Phillips, muth move a provincing character—though much admired Work

Hibliography of Hritish History 1851-1914 edited and compiled by H. J. Hanham Clarendon Press: Hyford Polygrafty Press, £35,00 ISBN 0-19-822389-7 character—though much admired by thuse who saw him at work in by those who saw him at work in Washington in the early years of

Washington in the early cears of the war—ewerges at a tremea-dougly important support for Keynes on atany issues in the very citable of orthodoxy.

Keynes himself romes out even better than some of us had thought. Not that he did not that he has an at times, compromise, and not that he has an at times were the This volume continues the sort dard retruspective hibbiography of British history spursaced by the American Historical Association and the Royal Historical Society. The secies fegan in 1928 with a bilifiography of the Stuart period by Godfrey Davies (revised in 1970).

Its aim is to list the anglar works a student would be likely to containly ingether with a selection of other publications sufficient to make clear the scope of contemporary prioted material, and a selection fragary prioted material, and a selection. within the mechanism of British government a source of regular recommits active on problems of policy, to bring together academic economists with politicions and administrators and to confront the available corons of economic theory with the practical problems of the economy and of government of the economy and of government policy in relation to them.

The theme and the way has straightforward times, compromise, and nor maj ne was not at times wrong. Hun, never destinations of the economists of the print, near dentic and semi-academic alike. Perhaps the clue to his rule is to be found in one of the authors there are some and the way has being equivalent to the hiblical "not wearying in well-doing"—

parary prioted material, and a selec-tion of hingraphical retitings. As in previous valumes, British history is defined in its broadest sense to include our only political, religious and sucioeconomic history but also science, medicine, literature and the the authors, in the best tradition of scholarship, permit themselves only slight references to possible

arts. The scale of Professor Hanham's analogies to later events. When they do, it is to institutional rather they do, it is to institutional rather than policy aspects: the Central Economic Planting Staff, the Economic Section of the Cabinet Office (later absorbed by the Treasury), the Department of Economic Affairs, and so on. In these passages, they refroin—rightly—from giving a decisive view on the vexed question of the relation of economic advice and advisers to politicians or civil servants, businessmen or civil servants, businessmen or civil servants, businessmen or civil servants, businessmen or irade unionists or on the proper location (and status) of the canonic mic advisers that are "brought in" to government, olthough they touch upon possible answers.

Where they ore toully silent—and this is absolutely right—is no the relevance of those debates of long ago to the perplexities of long in the provided with a few from 1973.

The volume is not external relations which gives compreheasive coverage only to the distinction main entries and an even larger main for extending the distinction main entries and an even larger main ber of substitution of the distinction from the reasons for the distinction prophy is over double the size of the seventeenth and eighteenth central prophy is over double the distinction prophy is over double the size of the seventeenth and eighteenth central prophy is over double the size of the seventeenth and eighteenth central prophy is over double the size of the same series for the seventeenth and eighteenth central prophy is over double the size of the same series for the seventeenth and eighteenth central prophy is over double the size of the same series for the seventeenth and eighteenth central prophy is over double the size of the same series for the same series for the same series for the seventeenth and eighteenth central prophy is over double the distinction of the reasons for the distinction of the erasons for the distinction of the same series for the

It is inceitable that a biblingraphy on this scale will be unable to incorporate material appearing inmediately before publication, olthough regressable that in this case it has been found possible to claim luil coverage only to the end of 1970. Many works appearing in the following two years are included, tagether with a few from 1973. The volume is provided with an index that includes entries for subjects es well as authurs, and which may be used to supplement the teble of contents and the cross-references in the text. The ludex is generally accurate but could have provided greater assistance in tracing the location of entries on e given tapic. A reeder searching for material out allows is referred to the entries on those in Ireland and India, but not Cenade or South Africa; the absence of citetions an Austrelion rollways is en indication at the variability with which the literature on different person the British Empire the relevance of those debates of long ago to the perplexities of today. Do the organients about interest rote policy between Keynes on the one hand ond the Treosury and Bank of England on the other have ony bearing mathis manadis on our problems of tudity? What is the right antique to public expenditure, the exchange rate, export the right attitude to public expend-liure, the exclunge rate, export competitiveness, industriol strategy (very much to the fore even then in the minds of smale people), monetory policy, unemployocut? History may not teach, or may not teach spuck (no) even to avoid nbvious mistakes), but anyone who wants to trouslate events, ideas and octors of today into those of the thirdes, or vice versa, will lind hore all the rew materiel.

First and incement, this is a hook of scholarly research. diffurous perts of the British Empire lins been covered.

Despite such slight reservations, the valve of this wide-ranging biblio-

First end incement, this is a hook of scholarly research. For that research, but even more because of its price, it is to be feored that it will not be read, marked, learned and inwerdly digested by us many who should do just that. The Sacial Science Research Council, already portly responsible for having made this bank possible, cauld do a lot worse then enable a cheap poperback edition to be published. graphy should be emphesized. Pro-fessor Henhem and those ossisting him have pleasd in their debt all concerned with research into the history of this period. With the limithent publication of the volume edited by Lucy M. Brown and len R. Christie on the preceding 60 years. Christie on the preceding 60 years, o major contribution in British historical scholarship will for the time

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Inside the Company

in licingal in the Eighteenth Century by P. J. Marshall Inremion Press : Oxford University Press, £7.75 ISHN 0 19 B2566 5

Anyone opening this book expecting a culourful account of lorumemaking in eighteenth century India will be disappointed, for Dr Marshall does not belong to the group of writers obout India who are preoccupied with drama, colour and eccentricity. The book is a reasoned study in depth, not merely of particular large fortunes in the past-Clive years, but uf the means of making them to general and of the social and economic conditions regulating their size. It is written in a clear and vigorous style and the theme has been studied with the theme has been studied with the theme has been studied with the clone attention to primary sources. The social analysis both enumers the many. More endurable that the means in fleagal with the changed conditions the presents for the few and smaller deferred.

The deferral was unfully proposed to the company's name as the scale with the spurious addition of two drinking-form manutes; still a massive piece of celtic act in flerication. But to Scott's informant, and mortably with the spurious addition of two drinking-form manutes; still a massive piece of early Celtic act in flerication. But to Scott's informant, and mortably was a "mortable piece of Celtic craftsmans analysis of the changed conditions in fleagal with the changed conditions are mortable to the second and and eccentricity. The book is a As a social analysis, both compre-hensive and detailed, it ronks very high, it will make an impact upon the world of Indian historiography capacity for the supply of the comparable to that of Dr Holden Furber's John Company at Work

Macshall's main concern is with the private lortunes of the firitish tion the scales of financial in India, which means chiefly the irregularity. More compoversial is servants of the East India Combine the with the cash balances puny. Interlopers, the Company's transferred to firitian did not conearly hughear, did not in fact do particularly well; the more successful of ikom like Thomas Pitt of Madros were and the Thomas Pitt of more successful of its meaning that the insertion will be successful of its meaning that the insertion will be successful. ful of ikom like Thomas Pitt of in war is usually the ultimate gainer; hus the argument is well company's bandwagon. The Company's servents did not directly infinge the Company's monopoly in the company's considered. fringe the Company's monopoly in general. But they were affected by the Company's reletions with the

East Indian Fortunes: The British in Hengal in the Eighteenth Century both within India and overseas with the Middle and Far East. Thus in the later years opinin export in China (as a means of purchasing tea) grew rapidly while trade with the Middle East declined. Then indign come like a new comet into the Indian economic firmament.

The conditions, even before Plassey, were such as to allow fortunes to be made, though less speciacularly than later; the pros-

und challenging bank.

Catalogue of Celtic art

Early Celtic Art ia Nurth ttritain. nlimes 1 and 2 ny Atomia MacGregor cicester University Press, £25.00

In 1829 Sir Waher Scott acquired a striking piece of menamental bronze, "found in the parth at Torrs, Parish of Kelmu, Palloway". Victorian antiquaries classed the object us a claunfrein, or decurative spectucularly than later; the prinspects over enough in tempt gentry to send out their relatives to India.

After Plassey, of course, the scale grew much greater. How to dead with the spurious addition of the sentences. The deferral was unduly pro-

ly maintain both of a particular masterpiece and of the major genro of British my which is represented. Marshall very properly insists on Sus Piggott and Baniel did a little (Harvard University Press) in 1948. a comparison with contemporary to dispel ignorance with their Parameters of Contemporary to the Contempo Celtie art in Britain er oe er to the estibition "Early Celtie Art" in the Hayward Gullery, Landon, in the amunin of 1970. Spunswed jointly by the Edinburgh Festival Society and the Arts Council, and the argument is well and commisseers as well as to acaster seriously considered, informative possible, informative possible, in the catalague in give a warning about "the measure of the concept of the catalague in give a warning about "the measure of the concept of the catalague in give a warning about "the measure of the concept of the catalague in give a warning about "the argument is an altogether and success which the catalague in give a warning about "the argument is an altogether and success which the subject poorer in give a concept of the concept of the

All this is a necessary background to the appreciation of Dr. MarGregor's smally, for she was a graduate smalem of Piggor in the years before the Hayward exhibition, and some of the nonstanding objects shown there find a plane in the ratalague and illustrations. The famous warkings (Pollical Thought area is much of a "refluctantly and screptort" boundary line from the Mersey to the North York Mious. If the period is from about 100 flut, in manufacture, and sub-Fit seems that Peter Lasleu's as is now available halannouncement of the death of political philosophy in 1956 was premodered in the earliest of the course of from an understanding of the manufacture and sub-Fit seems that Peter Lasleu's as is now available halannouncement of the death of political philosophy in the creation of a theoretical in the century peat-couling for the death of political philosophy in 1956 was premodered in the earliest of the course of from an understanding of the sensions and interpretative features of the caldone legistration of the death of political philosophy in the death of political philosophy in the creation of a theoretical in the century peat-couling for vector in the course of from an understanding of the sensions and interpretative features of the nanonaccutem of the death of political philosophy in the death of political philosophy in the death of political philosophy in the creation of a theoretical in the creation of a theoretical in the creation of a theoretical in the course of from an understanding of the sensions and interpretative features of the nanonaccutem of the death of political philosophy in the caldon's from an understanding of the sensions and interpretative features of the nanonaccutem of the death of political philosophy in the caldon's from an understanding of the sensions and interpretative features of the human from a provide of the nanona

Dr. Marthegor's work is in two

acial Romancesalism.

very different parts. The slim first volume, which she herself describes as "ephenteral", provides an archaeological and historical back ground for the metalnork, and a discussion of the major classes of object on which this essentially decorative art was displayed; horse trained, and laymen—as upposed to gear, recapoits and armour, per on d academic specialist—remained large- ornaments. large, and small, and infilaments large and small, and domestic equipment. Her draw-sion is often enlivened by peneral-For this detailed in ginetellectual tradition; same free sion is aften enlivened by penetral ingramments and building perceptions, but these are presented in a throward with the allocation occurring which is allocated by pressed, and plain ungranty. The field learner of the first volume is the photographic plates. There are sharp, well lit, properly profied, and relevant; four essentials which are all too often ignated. There are also some excellent distribution maps, held and not over leaded with symbols; and an invaluable "barbaik", not necessitized to setually deliver the invalue of Newtonlan notural in terms which figure is clence—to actually deliver the interactions of Newtonlan notural in terms which figure is clence—to actually deliver the interactions of Newtonlan notural in terms which figure is clence—to actually deliver the interactions.

there it is almost enting of several recent bedside visi-that for a decade the bors to offer a hopeful prognosis. that for a decode his bors to offer a hopeful prognosis.

Standard for the precion offer a hopeful prognosis.

Celtic metalwork in high. No naw Hobbes or Hegel has supplified or idealized becared to reconstitute sociol and best medium for tensificial theory on the basis of a two-dimensional black riew epistemology. No new Marx the swelling there is bridged the danning gap becared in which the Green theory and practice. Rather, reloiced. But even between theory and practice. Rather, talent tails before a there has been a quiet and collectured that the late tities sifting and regrouping of the constructive reaction as well. It was a reaction shaped by the precions of the place of the late tities sifting and regrouping of the constructive reaction as well. It was a reaction shaped by the precions.

The Must Splendbl Fulluce:
Furthmer's The Sound and the Fury by André Ithelkasten Indiana Philosophy Press, 19.15
ISBN 0-251-31877-8
It would be pleasant to be able to say that The Must Splendad Fulluce to what their place is before cooling them the answer in our prayers that

Practising the art of the possible

a chance to prove hemselves here.

books have appeared in the Federal Republic which, rather over burdened with ideology and theory, have been at prints to show bow wided guidence through the difficult which, rather over burdened with ideology and theory, have been at prints to show bow wided guidence through the difficult tend however to present the union testd however to present the union movement os more unlised than it octually is. There are continuing differences of ylaw between the individual unions; one hears, for example, various opinions concarning example. Various opinions concarning present government policies and thase range from friendly to quite bostile. Furthermore the union movement cannot be identified completely with the national centre, the Danacher Gewerkschoftsbund. For example, Herr Vettar's suggestion that unemployment tar's suggestion that unemployment be combated with a shorter working be combated with a shorter working week end waga restraint hes bean vigorously opposed by the leeders of tha two most powerful unions in the country. Nevartheless, this book throws a lot of light on o union movement that has been generally more admired in this country than really understood.

Clive Edwards

30035

A statement of intent

Bornstein saes as collectively offer-

ing the meons of restructuring are

nguistic analysis in philosophy,

resources available within the exist-For this detailed in ingintellectual tradition; same irre-

The first contribution is that of onelytical philosophy. Seen at first as destroying the prefersions of as destroying the pretensions of social science it gradually became clear that work in this field was both incapable of proving the impossibility or worthlessness of empirical social theory and that it was establishing the need for a conception of human action that went fair beyond the bruildnries of empirical theory; the need to brook the distinction betweek social reality and the longuage of description of that social reality, to recognize that longuage is constitutive of social reality and that longuage is constitutive of social reality and that longuage in its intra is "embedded in practices shaped by intersubjective rules and distinctions". The illrection in which an adequate social philosophy needed to go beyond

felt by many in be less than human; mainstream airial science. Never to preclude understanding of the theless as a programme of sork to sensious and interpretative features by those in claborating a more sensitous and interpretative features he those in of the human world; to withdraw integrate social theory, phenomenation an understanding of that world as a human construction; talentingramically of the social above all to have abundanced the and political purils . . . turns our involvement of political philosophy gaze to the constitution of social in the creation of a theoretical political meanings. . . reveals the trees concerns were now ruled out these concerns were now ruled out and political worlds in these first-

order Commonsense constructs

these constructs for granted. They must themselves be understood in terms of causol influences operachosen to exist; logically possible it might be but many found it live in their formation. And this is where critical licery makes its contribution. It is also where Bernstein's applications is perlanged Bernstein's nprimism is perlings must questionoble. Like phenuncenology critical theory embodies both a demand and a programme. The demand is fur the reengingement of theory with practice, on assertion that "human beings one engage in rational organization in which there is a commitment to the critical evaluation of the quality of human life". The programme, offered in its most substantial form by Jurgen Habermas, envisages a self-conscious muslysis of consciousness principally emecaned with the ideological freezing of consciousness in forms that sustoin some people's power rather than a comconstructive reaction as well. It was a reaction shaped by the riccing together of three broad movements of criticism; movements which when taken together begin to pro-vide a framework for the renewal of a classical understanding of the tasks and possibilities of social and political theory.

The critical movements which

people's power rather than a com-mon rational emoncipation.

Habermas's distinction between three types of fundamental human Illinguistic analysis in philosophy, phenomenology, and the "critical theory" of the Frankfurt School. The special value of his work lies in the claim that it is in the cumulative contribution of each of these critiques together with that of the thing the building blorks for the restructuring of social and political theory are to be found; that it is a matter of diolectical progression and not of cither or choices between rivolschools. Interest "-technical, practical and emancipatory — corresponding to three types of knowledge—empiri-cal, interpretative and critical nearly organizes the courrent pre-dicament of social and political philosophy ond provides a strong context for the onalysis of the diffi-culties of both empirical and interprelative social scienca,

But the more constructive claims of rritical theory must in their turn rest on a secure and warranted episterwology. And this is what critical theorists have as yet falled to establish. We are laft with the iden of work in progress—a statement of intent which has still to be authored in a compelling theory of knowledge. We cannot yet be sure that the three-dimensional world of social philosophy envisaged by Habermas and Bernstein actually exists. The trenchoncy of the critique of the one-dimensional world of empirical theory manufed by linguistir philosophy, phenomenology and critical theory forces us to hape that it does, but the re-

Patterns of crime

Crime and the Development of Mollern Society: Patterns of Criminality in almotecoth-century Germany nod France by Howard Zehr

the only promising-recent develop-

Crook Helm, £7,50 ISBN 0 85664 235 5

ment in criminology is its discovery of history. The standard bland accounts of the development of the prison system as a story of "progress" are gradually being replaced (through the work of scholars like Rothman and Foucault) by an aitogether more realistic history of our contemporary systems of punishment. The old simplistic distinctions between "ordicary" and "political" crime ore continually being questioned by a rerending of Hobshawat, Rude and Cubh as well ns the exciting current work by sucial historians in the E. P. Thompson line. Wherever criminology hus menaged to shake itself free from its nwn pust, some understmiding is emerging not just of the history of crime end the systems designed to control it, but also what lessons or contempurary policy and theory this exercise con reveal.

Zchr'a study—he sublitle Pallerus of criminality in minetecuth subtitle Patterus of criminatin in nineteenth century Gerntuny and France is altogether more modest and accurate thun the inflated litle—will be ouseful empirical contribution to this debate. With the poinstoking core essociated (usually pejoratively) with the eart of good PhD which this book storted as, Zehr is content to tackle a limited but significant set of hypotheses. The patterns he is after are familler enough to criminologists from their previously misystematic talds on historicol material; the overall relationships between crime and the great nineteenth-century forces of industrialization and urbanization.

Using statistics of sometimes

Using statistics of sometimes greater variability than he often admits, Zehr tokes France and Gerntany betweek 1830-1914 as the hunting ground for his dath. At times the enterprise looks like disappearing hehind all those detailed tobics and grophs—showing, for example, correlations between potato consumption and annual their rates in France from 1831-1869—bur it is

boy and critical theory forces us to hope that it does, but the restricturing of social and political theory amounts for the numera in does not begin to make gloss on some conventional wishift in property crima and the economy. Cycles of their are certainly related to fluctuations in this book. It is to be hoped, but any I fear expected, thus those social science mandarius who are currently debating the question of investing large sums of public money in new agencies of policy research will also leove from it before making their decisions.

Philip Abrams

worth persevering to find the idial in the idial in patterns.

The first set of correlations put a gloss on some conventional wishing hot consistent with femiliar near and the relationship hetween property crima and the economy. Cycles of their are certainly related to fluctuations in doing the home. We should all he grateful, though, to Zehr for his patience and determination in doing the home work necessary for making these and very high theft rates. But the close relationships between theft and indices of cost start loosening after the 1860s and the upward shift in property crime alongsida lower subsistence costs and improved living standards, is more consistent with fomiliar relativa

Stan Colien

Stan Colien

deprivation undels. At the same time though, there are only say out of the 31 years between 1882 and 1942 in which movements in their lates cannot be "explained" by movements in the husiness cycle, less readily predictable is the fact that while confusions herween their cates and urbanism increase as the older subsistence determinants weaken, there is no clear assuming to the context of the categories of the confusion of the categories of t ants treaken, there is no creat asso-ciation between theft and arbaniza-tion itself. Zehr quite rightly points to the moralistic elements in to the morallstic elements in theories blaoning the hig city for its supposed normlessness and social disorgunization.

disorgunization.

The second set of correlations, about violant crime, give much further room for speculation: theft and assoult appear to be inversely related to prices; the largest cycles of interpersonal violence coincida with the greatest perinds of collectivo violence; there in o near perfect entrelation between wino consumption and assault rates before 1870 and again, the urbanization connexion looks weaker than is conventionally the urbanization connexion looks weaker than is conventionally accepted. Indeed mony rural areas had assoult rotes higher than to cof the clies (aven though tural vialence is probably underestimated by official records). When looking at homicide — which seems to vary quite independently from assault as a whole—there is again no connexion with urbanization. Most interesting of all is the picture revealed by calculating the theft-violence vatio; the change from a pre-modern pattern of crime in which violence is high relative in property crime to the characteristic modern pattern where violence is

Some of these patterns are, of course, tentative, and Zehr is aware course, tentative, and Zehr is aware enough that such gross statistical correlations have to be supplemented by individual cose studies before we can even begin that rudimentery task visualized in the nincteenth century of using crime rates as a kind of moral barometer, a guide to the normal processes of social change. The further Zehr venturas beyond his tables, the Iesa secure he is: for example, in the Dunkheiotian notion of the positive functions of crimo and the assumption that crime is somethow o rotionel response. He is also weak (as everyone else has been) in otaking such concepts as anomia and relative deprivation operational ond he does not begin to muke theoretical sense in talking chout crimo and conventional political

new from "

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Finither particulors may be obtained from the Registier, Rhodes University, P.O. Box 94, Grahomstown 6140, Republic of South Africa, to whom applications logaliter with the names of two referces should be submitted by April 18, 1977.

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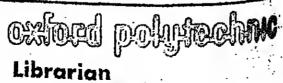
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> > AUSTRALIA



The Victorian College of the Arts

Education to confuct courses, at digrining and legies level, in the time and recturning ant. The Schools of Art, Music and Diano are already operating. The School of Dance is to open in stydents in February 1979. A Junior School, for young dencers and inusicions, is planned to open in 1978. The Cuttings is adjacent to the Victorian Arts Centre. The Director of the Cutting is Milester Burn.

DEAN~ SCHOOL OF DANCE

programmo.

achieved pholestanual instruction in the healt of dance and/or have a speciality in that is every treat The appointer will be expected to take up travely

SALARY: A\$27,500 tides

Further information — Details of the position rise College and the information to be included in application are available on require in

The Administrator. The Victorian College of the Arts 234 5t. Kilda Road, Mullinume, Victoria, 3004. Austrolia.

All correspondence thought be marked 'Contributed' Applications should be ladjest by 1 May 1977.

Overseas continued

CHURCHLANDS COLLEGE Perth, Western Australia

Churchlands College is situated six miles from the centre of Perth. the capital, and was estabhished in 1972. In 1976 e Bachelor of Business Degree course was commenced and there are now some 500 students enrolled. By 1980, it is estimated that there will be some 1,000 students in the Business Studies programme.

Teecher Education is the other main programme in the college end, in 1977, some 1,200 students ere enrolled.

VISITING FELLOW IN FINANCE

Nominations are invited for the position of Visiting Fellow in Finance for Samester 1, 1978 (Fabruary-June, 1978). The appointes will conduct saminars for finel year students in the Finance Stream of the Sachelor of Busi-

The Visiting Fallow will be expected to have very good relevant experience end to have damonetiated a strong racent background to the field of tinence, either by publication, or by a rasearch graduate-level degree.

Sutary and travet arrangaments will be negotiated

Enquiron are also invited from sullably qualified persons who may be interested in appointment as a Violting Fellow in Finance in Samoster I, 1979, or Samester I, 1980, or in Samoster I, 1981.

BUSINESS STUDIES PROGRAMME

Applications are invited from suitably qualified persons with relevant experience for the following positions. Appointments will be mede to commence teaching in February, 1978.

Levet of Appointment

Appointmente may be made either et the Senior Lecturer tevel, Lacturer level, or Senior Tutor lavel, daponding

DUTIES: To leach accounting subjects, to assist in the prapolation of other courses, and to develop units of study offered by the School of Business

ECONOMICS AND QUANTITATIVE METHODS

DUTIES : To teech in at least two of the following areas : Economics, Quantifative Methodo, Merkeling, Businaso Systems,

ADMINISTRATIVE STUDIES

DUTIES: To teech in el leest two ol the following areao: Organisation Theory, Individuels and Organisations, Menegement Processes, Organisation Structura and Design, Menegement Policy, Personnol, Industrial Retellone; Small Business Menegement; and International Business.

DUTIES: To teach in of least two of the following arces: Anstralian Capital Market, Security Analysis, The tovosiment Decision: The Finencing Decision, Topica in Finence and Smell Susiness Managa-

BUSINESS WORKSHOP

DUTIES: To assist in developing and cereting material with a mutil-disciplinary approach; for the Bustnees Workehop.
To conduct workshop sestions end/or seminals

and act as a celatyst.
To easiet in looleting and meintaining conlocie
with the public end private sectors, and sister

Senior Tulor CONDITIONS OF SERVICE :

Sarvice Leave.

INTERVIEWS:

APPLICATIONS :

Interested persone should write to the following eddress requesting the usual formal of application; Migretion Lieison Officar,

AUSTRALIA

WARRNAMBOOL INSTITUTE

OF ADVANCED EDUCATION

Lecturer in Sociology

FACULITY OF GENERAL STUDIES

The Feculty of fols two courses. A Olphome of Social Science of Social Science of size teaches both the humanities and a broad tenes of social sciences.

DUTIES: To assist in the development and teaching of sociology courses.

QUALIFICATIONS: Applicants should have an

GUALIFICATIONS: Applicants should have an Honours or higher dagree in sociology. They should have a superantial background in sociol-ogical theory and method, and a keen interest in current developments. An interest in potitioal sociology may be an advantage. Experience in tutoring or teaching, will be sonsidered as an advantage.

Lecturor 11 \$A19,890 to \$A19,925 per enrum Lecturer 1 \$A18,314 to \$A18,389 per enrum

Commencing salery according to qualitications and experience.

An applicant with appropriate qualifications and experience may be experience at a higher level.

Applications close 11th April, 1977. Further particulars may be obtained from the Starting Officer and written epitications exacting qualifications, exceptione and giving the names and addresses of three referees should be addressed to the Statting Officer, P.O. Box 423, Weirnambool, Victoria.

SALARY

Applications close on 5th Mey, 1977.

CLAREMONT TEACHERS COLLEGE (A College of Advanced Education)

WESTERN AUSTRALIA

Applications are Invited from sultably qualified persons to fill SENIOR TUTOR/LECTURER positions in 1878 in the following arees:

SPECIAL EDUCATION

The eppointee will be expected under the direction of the Head of the Department to participate in the seeching of courses in epecial education, remedial education and it required in educational psychology. He will also a saist, if required in teaching practice supervision, leaching workshop and student counselling.

EDUCATIONAL PSYCHOLOGY

The appointme will be expected, under the diraction ine Heed of the Departn iseching of courses in oducellonel psychology and, if required, in special aducation. He will see assist, if required in leaching precitice supervision, teaching workshop and student counselling.

Salary and Conditions of Service
Salary will be negotiated at time of eppointment.

LECTURER \$13,518 \$18,978 (Australien)
SENIOR LECTURER \$11,745-\$13,518 (Australian)
(Salaries are currently under review)
Conditions of service ere comperable with those in Universities and Colleges of Advenced Education in Australia,

Applications: Oetells of conditions of service, dulies, relevant qualifications end application forms may be THE REGISTRAR,

CLAREMONT TEACHERS COLLEGE, P.O. BOX 224 CLAREMONT, 5019, WESTERN AUSTRALIA. Applications should reech the College by June 29, 1977. when the second to the trade of the second second

gisdusie dagrao (or squivalent) in the licid applied to:. Further, it is important that applicants heve hed extansive retevant exparienca.

TEACHER EDUCATION PROGRAMME

SENIOR LECTURERS

Art Education Early Childhood .Education

Applicants should be well qualified and at loast hold a

Educational Peychology Mothemelice Education Oral English and Drema Practice end Theory of Teeching Social Scienca Education

Appointess will hoad up leaching departments from time

LECTURERS/SENIOR TUTORS

Depertment of Early Childhood Education Theoretical and practical background in one or more of the our riculum and taaching areas, such as muelo education, art education, oral English and drema,

mathemetics education, social scienco education, etc. Psychological and/or sociological joundations of

Deperiment of Educational Psychology

- Child development end Child Study. Remediel and Special Education.
- Personality
- Depertment of Social Science
- Teeching of societ sciences (3-12 yeers age range) Physical end/or human geography.

Economics.

GENERAL INFORMATION SALARIES:

Aust.\$18.795-\$22.019 Senior Lecturer Lectural Aust.\$13.850.\$18.389 Aust.\$11.851-\$13.687

Similer to those in other Australien colleges end universities and make provision to sebbatical leeve and Long

Two senior members of scedemic stell will visit the United Kingdom in June, 1977, and candidates who heve been short-listed may be offered the opportunity to attend

115 Strend, London, WC2R 0AJ.

The appoints will be required to teach Toxtila

Salary within the range A\$18,785 -- A\$22,019 p.a.

Rel. No. 152/15/AS Closing Oste: 29.4.1977

Written applications should be addressed to the

FOR FURTHER OVERSEAS > APPOINTMENTS SEE PAGE 2

Ç.

Film Officer Salary on the AP4/5/SOt Local Government Scale: £3,386 to £4,545 with supplement of £312. The plement of £312. The eppointment will probably etart on the AP4 scela. Further details/application idens (relationable by 13th Application 1977) from 7 Michael Dawson, Director, Yorkshire **Association** Arts Glyde House, Glydegate Bradford BD5 0BQ

Administration

Applications are invited from a suprimeral and a representations are invited from an introduced part of the control part of the control part of the control part of the control part of the country and application and printing becing the country and in Education Cificar. This is a miles are of the Country and a c

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KONDON THE PUNITURE EDITIFATION COURSELLING REVIEW AND THE UNITED REVIEW

DEVELOPMENT OFFICERS

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THE TIMES Education BRISBANE-AUSTRALIA

Salary for the five and buy file. It \$1.00 to the correction to the file and the fi **LECTURER**

THE HOLES THOREN ENGLATING SUPPLEMENT BE

Eight oppointments to the academic staff of the Law

containpleting making two further appointments. Applications are invited from quitably qualitied persons who can take up thatr duties between October 1st and Decomber 31st, 1977, with a view to commencing teaching in Fabruary, 1978, Applicants should possess approprinta aendemic qualifications in Law, Practical experience and teaching experience at the tertiary level would be distinct advantages. Successful apple cants will be given the operationty to require in further study, rosearch and consultation, subject to the control

Applications, quoting Vato/77 and stating personal



The Victorion Collaga of the Arts that established

DUTIES: To be responsible for the pleaning, conduct and stavelopment of the School. The continuation in the pleaning recorded and making recorded and continued to the conducting population.

OUALIFICATIONS: Applicants throat loads

The Times EDUCATION Supplement

CHIRO **AUSTRALIA** DIVISION OF BUILDING RESEARCH

HIGHETT, VICTORIA SOCIAL/BEHAVIOURAL **SCIENTIST**

The Commonwealth Scientific and Industrial Research Organisation has a binad chaiter to research into primary and sacondary industry areas. The Organica-tion has approximately 7,000 employeos---2,299 of whom are research and protessional scientists—located in Divisions and Sections throughout Australia.

GENERAL: The Olivision undertakes a very wide range of thooratical and applied rasaarch concerned with building and the built anvironment, recently extended to sociol and behavioural problems in rural and urban environments. Community problems ere being altacked environments. Community problems ere being allacked trom a variaty of viawpoints by a group comprising erchitecte, acciologists, psychologists and geogrephete. Among problems being studied at present are remote communities, symbotic end ecciat charecteristics of housing, sociologicet end psychologicel espacie of community decision-making, end intra-urben migra-

Rassarch Sciantists have considerable outenemy, as well as the opportunity to join in multi-disciplinary approaches to complex problems.

OUTLES: To undorlake reenerch in the area of lumnn bohevious in the built environment.

OUALIFICATIONS: A Ph.D. in social psychology, soci-

ology or goography, and domonstrable rasaarch ability. A lower degree plus eppropriate research experience BALARY: Research Scientist or Senio, Rasearch Sci-

antist : \$A13.517 to 5A19.919 p.a. TENURE: Indefinito or fixed term. Applications stating FULL personal and professional

dalais, the names of at least two professional retereas and quoting reference number 390/591 should reach; The Porsonnel Officer, Augirelien Scientific Lieison Office,

10-1B Mallravers Street, London WC2R 3EH. by 15th April, 1977.

AUSTRALIA SENIOR LECTURER~ **TEXTILE DESIGN**

RMIT

(PRINTED & WOVEN) SCHOOL OF ART

DEPARTMENT OF DESIGN Applications are invited for the position of Sentor

Applicants should possess a tentiary level quelification in textile. A broadth of practical experience in industry and a background of teaching in tertiery institutions televent to the position is desirable. Management or administrative experience in oither industry or education is experience.

Doden and undertake other duties as detailed in the Schedule of Duties.

Intending applicants should obtain a Schedule of Outles from the Staff Branch, Royal Melbourne Institute of Technology, 8ox 2478V, G.P.O. Melbourne, Australia, 3001.

Royal Melbourns Institute of Technology 1959